FEBRUARY, 1951

Traffic Engineering

Official Publication of the Institute of Traffic Engineers

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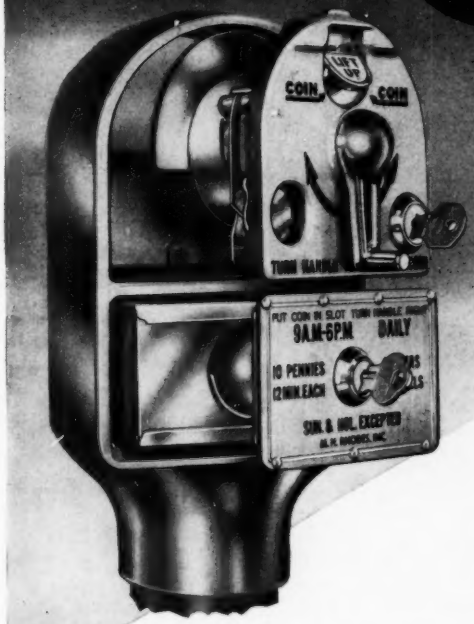

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Traffic Engineering

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

VOLUME XXI | FEBRUARY, 1951 | NUMBER 5

COVER: The Broadway Westchester Department Store (formerly Millirons) located in the southwest part of Los Angeles illustrates a decentralization trend. Parking on roof and at rear of the store will accommodate 750 cars. Restaurant, beauty shop and similar facilities are located on the roof.

Photo by William Eccles, Los Angeles Airport Photography

Traffic Engineering is that phase of engineering which deals with the planning and geometric design of streets, highways, and abutting lands, and with traffic operation thereon, as their use is related to the safe, convenient, and economic transportation of persons and goods.

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Is parking Congestion chasing away Business?

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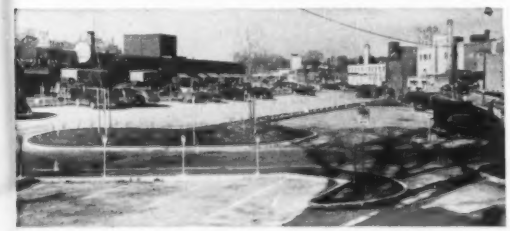

● *This view shows how area was laid out to achieve interesting and attractive appearance as well as efficient use of space.*

● *One of the walkways, an important safety feature, showing installation of Dual Parking Meters which serve the entire facility.*

MANY cities are facing a serious new parking problem. Shoppers are by-passing business areas where it is hard, or impossible, to find parking space. Merchants lose business. Property owners lose tenants. And municipalities foresee deteriorating business sections.

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Frankly Speaking

"FRANKLY SPEAKING" editorials in recent issues of Traffic Engineering have to a large extent been devoted to the internal affairs of the Institute of Traffic Engineers, discussing ways and means of making the organization more useful to its members.

A major purpose of the *Institute*, obviously, is to serve as a clearing house of ideas, helping its members to become more proficient in the practice of their profession. It is to the interest of each and all of us to cooperate in making the *Institute* function at its best. But the rule works both ways. To the extent that traffic engineers give better service to their respective states or municipalities, to that extent will they enhance the importance and the prestige of the *Institute*.

Assuming that traffic engineers have the requisite technical knowledge, honesty and integrity, their usefulness in solving traffic problems and promoting traffic safety will depend on: (1) their courage to stand by their convictions; and (2) their ability to inform other officials and the general public of the basic principles of traffic engineering and the reasons for their application to various situations.

Let me illustrate: a traffic engineer on the state level is constantly faced with letters, petitions and calls from local officials, civic groups or individuals making specific proposals and demands to take care of real or apparent local hazards. Some of these may be sound, many are not. One of the most common is the demand for posting signs with lower speed limits. People seldom stop to think that where a street or highway is properly zoned, the hazard is not created by the great majority of drivers who stay within the posted limits, but by the minority who exceed these limits, and they forget that lowering the limits will not influence those who are already ignoring the posted limits.

The easy way (temporarily) would be to say "yes" to everybody. It takes courage to say "no" to people who are sincerely interested in promoting traffic safety but who have erroneous notions as to the efficacy of the devices they propose. If the traffic engineer is patient and diplomatic, he may be able to convince them that putting up traffic control devices which seem unreasonable to the average prudent and cautious driver will only create disrespect for all traffic regulations and encourage violations. To say "yes" to each demand without thorough study is apt to make the traffic muddle worse instead of better.

This does not mean that the traffic engineer can disregard public sentiment. Nor does it mean that the public is always wrong. The public is usually right when it is properly informed. There will be times when the traffic engineer must go slow, when he must be patient, when he must wait for public support to develop. He must use every means at hand to inform the public of traffic problems and remedies, through the press and the radio, through talks to public meetings and delegations. He should not allow mere bias or prejudice to make him obstinate or arbitrary in opposing public sentiment, but he must never compromise his principles for the sake of temporary popularity.

J. E. Barnell

Director

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The SPHERE of SAFETY

Public Support in Traffic Engineering

By Earl J. Reeder (Mem., ITE)
Traffic Engineer, Rader-Knappen-Tippetts Engineering Co., Miami, Florida

In any manufacturing industry the character of the raw materials and the product that is desired govern the process that is used. It would be futile to attempt to set up a process by considering only the final product and disregarding the characteristics of the raw materials which must be put through the process.

In traffic engineering we have the same requirement. In deciding what we are going to apply to solve a traffic problem, we must consider not only what we want to accomplish in safe and efficient traffic but we must also consider our raw material, the drivers and pedestrians who are going to be put through the process that we develop. Our raw material is human beings who not only have physical characteristics like the raw materials in industry but, also, mental characteristics and attitudes which make them vastly different from the raw materials in industry.

When we talk about public support in traffic engineering we are really talking about the mental attitudes, of the "raw materials" that will be put through the "traffic machine," which we design and establish.

Drivers and pedestrians who are sold on the traffic facilities and regulations that are imposed on their use of the streets and highways produce good traffic conditions just like uniform materials properly adapted to a mechanical process will produce a good product. However, raw materials that are not adapted to an industrial process can ruin the equipment and produce general confusion. In the same way, drivers and pedestrians who are not sympathetic toward a traffic system, can keep it from working—that is, they can produce congestion, confusion, and accidents.

Now, how can we as traffic engineers adapt our traffic and transportation processes to our raw material? And, is there anything that we can do about adapting the raw material to the desirable processes? Well, here are some of the things that the author has seen work and which others may apply equally well.

First of all, show a sympathetic interest in the public views concerning a problem on which you are working. Find out what it really is that the public wants to accomplish in traffic. It may be that 33 MPH would be the speed for the maximum flow of traffic through a given street, disregarding the utilization of abutting property and the destinations to which the street leads. However, if it is a street that goes nowhere in particular and serves only the business houses along that street, any attempt to attain maximum traffic flow by adapting control equipment to a 33 MPH speed would undoubtedly be futile.

While that seems perfectly obvious, it is very easy for one in the traffic engineering field to contend that because a design or control plan gives what he considers to be a preferred result, the public should and will accept it.

Particularly, in the early stages of a traffic engineering setup in any community—city, county or state—a sympathetic attitude toward the public desires is imperative, to prove that the traffic engineering agency deserves the confidence which it asks. Later, when the public becomes convinced that that traffic engineering agency is sympathetic toward public needs, although this may not be perfectly obvious in every case, the public reception is greatly improved. So, the first requirement of public support for traffic engineering is sincere effort to determine just what is the public attitude on different phases of the traffic problem and to recognize any basic soundness that there is in that attitude.

The next basic requirement is to interpret proposed plans in terms of definite policies and overall programs. This may be, in effect, another application of the above requirement. It may be a matter of getting one individual or group to see that he must be sympathetic toward the general public requirements. The vast majority of people are apt to accept a plan or a decision concerning their specific problems when they learn how it relates to the general problem of the community.

Frequently, in dealing with groups or individuals, if it is possible to get endorsement in principle of a general policy or program, the solution of the specific problem becomes simpler.

Frequently, there are conflicting interests concerning problems that arise and solutions that are proposed. These interests must be reduced to some common denominator if any semblance of an agreement is to be reached and any assurance of successful solution is to be attained.

Trying to deal with such interests separately merely puts the traffic engineering agency in the middle, usually with both interests overplaying their phases of the problem and, thus, creating conflicts that cannot be resolved except by getting together in a common discussion.

Hence, whenever there are conflicting interests where two or more groups are concerned with the problem, representatives of all interests should be brought together for a discussion of the common problem and agreement upon a solution that will fulfill the technical requirements and meet the demands as they may be revised.

Sometimes, it is not possible to get the opposing groups together for discussion, but if an attempt has been made no one has a right to complain that he didn't have a chance to present his views. The author once had a case in which two different groups were demanding the solution of their common parking problem in ways that would be especially to their own advantage but to the disadvantage of the others. But request for a meeting of all of the business people involved for the discussion of the problem from all viewpoints, did not materialize. All of the groups were notified that if they would not get together nothing would be done about the problem except as it affected other traffic than that in which they were especially interested. Since that time some of the properties that were involved have been vacated, but no one has ever raised the problem since.

A fourth important factor is the use of community organizations for promoting necessary improvements. In sev-

eral instances it was necessary to work with local business organizations in getting comprehensive programs adapted and applied. Placed before them were clear statements of the problems and the types of solutions that were considered feasible and agreement was reached on the solutions best fitted to the circumstances from the technical standpoint and from the standpoint of their business interests.

Such organizations are very effective in combatting selfish interests on the part of one or two persons or businesses in the community. When a group like that is sold on a corrective measure it can more than match the objections of individuals and can render especially good service if and when those individuals go to the officials high in the city government with false statements or invalid claims.

Another advantage of dealing with such organizations is that they supplement the eyes and ears of the traffic engineering agency and bring up developing problems before they become acute. Even the best manned traffic engineering agency in the country can benefit greatly from such sources of clues to traffic and transportation problems. None is sufficiently manned to be everywhere and see everything all of the time. A community organization with which the traffic engineer has good relations cannot only warn him of new problems, but it can understand his approach, the limitations that he may have in manpower, materials, or equipment, and work with him instead of against him in getting their desired results, even if it may take a while to accomplish them.

The simple thought of all this discussion of "public support in traffic engineering" is that the public and the traffic engineering agency must be partners. It is up to the traffic engineer to establish and continue that partnership through these four types of measures:

1. Be sympathetic toward the public views because the public concept of the problem must be solved or shown not to exist.
2. Interpret solutions in terms of broad policies and overall programs, so far as possible, going from endorsement in principle to detailed development.
3. When there are two or more agencies or groups interested in a problem deal with all of them together.
4. Work through and with community organizations.

Of course, throughout this type of procedure the traffic engineer should hold constantly before those with whom he is working the principles and tried experiences which the traffic engineering profession has promoted.

"Selling" traffic engineering measures through such means does not belittle our profession. In fact, failure to get such measures applied and used in successful solution of our problems is a discredit to us. Sometimes we may have to be content with less than what we consider to be the ideal until we can, in later steps, demonstrate the validity of our approach.

New Jersey Turnpike Service Facilities

Plans for construction of service facilities for the New Jersey Turnpike Authority are rapidly taking shape and it is expected that bids for this construction will be sought in the near future, it was announced recently by Paul L. Troast, chairman of the Authority.

"The planning of concession areas, includes gasoline stations, restaurants and lunchrooms, for which it has been determined to acquire lands for eleven locations initially. Architectural and engineering drawings are under preparation for typical buildings for the various sites, and construction will be completed in 1951.

"The restaurants and lunch rooms will be provided in air-conditioned buildings. They will serve quality foods ranging from snacks to full-course meals depending on the preference of Turnpike patrons. In the interest of safety, the Authority will prohibit the sale of alcoholic beverages on its express highway, one of the first decisions made by the Commissioners when they were appointed about twenty months ago."

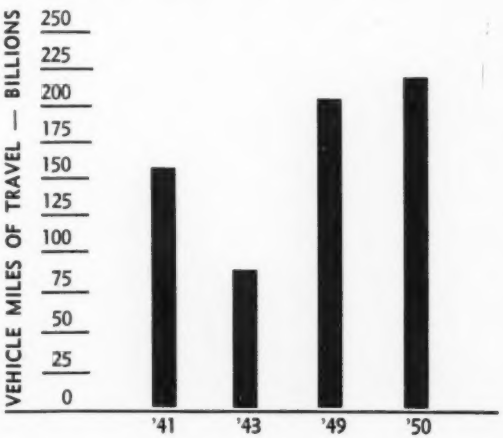
Mr. Troast added that there will be no motels or hotels on the super highway since such facilities, in all classes, are adequately available in the State within short driving distance from its many interchanges.

A contract for the steel work for the Authority's administration building, which is to be located at the intersection of Route S-28 and the Turnpike, in Middlesex County, has been awarded to Deleson Steel Company, of Englewood, N. J. The plans for this building, which is scheduled for completion and occupancy in the late summer of 1951, are well advanced.

All of the concession areas, said Mr. Troast, will provide ample facilities for the sale of motor fuel and for servicing of trucks and automobiles, and for miscellaneous repairs. At all of these areas, ample parking facilities and rest rooms will be provided for the convenience of Turnpike users.

"In our decision affecting service facilities, we have stressed the safety, comfort and convenience of patrons using the Turnpike," Mr. Troast announced.

Traffic Trends



TRAVEL ON RURAL ROADS FOR THE FIRST ELEVEN MONTHS of 1941, 1943, 1949 and 1950.

Based on Bureau of Public Roads Data

Driver Observance of Crosswalk and Stop Lines

By William L. Marvin

Metropolitan District Traffic Engineer,
Michigan State Highway Department, Detroit, Michigan

THE painting of crosswalk and stop lines at signalized intersections to provide pedestrian protection is a generally accepted practice. The supposition of this protection is that the markings will indicate to pedestrians the proper point at which to cross and also will indicate to motorists the point behind which they are required to stop. It has been assumed that vehicles will stop behind a painted crosswalk line and, further, that when crosswalk lines are preceded by a stop line a more positive control may be obtained. The validity of these assumptions has been tested during this study.

The method used was to observe vehicles stopping at signalized intersections without any markings, with crosswalk lines, and with crosswalk lines and stop lines.

Intersections Studied

Only the effect of painted crosswalk and stop lines on the stopping points of vehicles was desired. Since the presence of pedestrians either in or near the crosswalk might have influenced the motorists in their choice of a stopping point, intersections were chosen which did not carry appreciable volumes of pedestrians. Care was exercised, however, to choose locations that gave an outward appearance of having a substantial pedestrian volume potential.

One approach was studied at each of three intersections. All were signalized and located in the city of New Haven, Conn. The approaches studied were West bound George Street at Sherman Avenue, South bound Boulevard at Chapel Street, and North bound Orchard Street at Elm Street. The first intersection had a large hospital in the block comprising the NE quadrant of the intersection. The second intersection had a large city park in the NW quadrant. The third intersection had grocery stores located in the NE and SE quadrants. The presence of these facilities and the dwelling units that were present in the remaining quadrants supplied the desired appearance of pedestrian potential.

Table I contains a listing of the general characteristics of each intersection.

Field Procedures

After choosing the intersections to be studied and determining their physical characteristics, the field observations of vehicle stopping points were made. The information obtained in the field was: the vehicle stopping point, whether another vehicle was following the vehicle being observed at the time it stopped, the observed vehicle's path of travel after the signal turned green (right, left, or straight), vehicular volume, pedestrian volume crossing the observed street, and whether the pedestrian was present at the time the observed vehicle stopped. The data for the path of travel of the observed vehicle after the signal turned green and whether another vehicle was following the vehicle being observed at the time it stopped was recorded as it was felt that these might influence the motorist in his choice of stopping point. However, the number of vehicles observed in each category was too small to permit use to be made of this particular data.

The stopping point was measured by placing keel lines on the curb demarking each one-foot increment of distance back from the near curb line. For purposes of this study the vehicle stopping point was taken as the position of the front bumper of the vehicle at the initial point of stop, as measured from some known reference point, the near curb line. The observer stood in as inconspicuous a place as possible. After a vehicle had stopped the observer moved to a position where the front bumper could be aligned with the proper keel line and the stopping point noted and

TABLE I

GENERAL DESCRIPTION OF INTERSECTIONS STUDIED

Characteristic	George St. at Sherman Ave.	Boulevard at Chapel St.	Orchard St. at Elm St.
Width of street studied	36 ft.	48 ft.	30 ft.
Width of cross street	48 ft.	42 ft.	42 ft.
85 percentile speed on street studied	25.6 mph	30.0 mph	24.9 mph
Angle of intersection	90°	90°	90°
Average pedestrian volume across street studied	15 per hr.	4 per hr.	21 per hr.
Average vehicular volume on street studied	243 per hr.	337 per hr.	148 per hr.
General purpose of street studied	radial	crosstown	minor crosstown
Signal mounting height	13.5 ft.	15.6 ft.	14.4 ft.
Signal location	one four-way three-section head suspended in the center of each intersection		
Grades on street studied	less than one percent at each intersection		
Parking on street studied	parking permitted on both sides at each intersection		
Type of pavement on street studied	sheet asphalt on all streets		
Average percentage of commercial vehicles on street studied	9.7	17.4	20.8

Mr. Marvin was a student at the Yale Bureau of Highway Traffic during the academic year 1949-50, and this article is based on his student thesis research.

recorded. Motorists were not aware that they were being observed until after they had stopped and the observer had moved into a position to note the stopping point.

All three intersections, one approach at each intersection, were observed in this manner without any pavement markings. Then crosswalk lines, as recommended in the "Manual on Uniform Traffic Control Devices for Streets and Highways," were painted across each approach studied and a second set of observations was taken. The crosswalk lines consisted of two six-inch white paint lines nine feet apart. The near crosswalk line was placed twelve feet in advance of the near curb line at two intersections, George Street at Sherman Avenue and Boulevard at Chapel Street. At the third intersection, Orchard Street at Elm Street, the near crosswalk line was placed fifteen feet in advance of the near curb line. Next, three sets of observations were made at George Street at Sherman Avenue with stop lines, again as recommended in the Uniform Manual, placed four feet in advance of the near crosswalk line. The stop line was six inches wide for the first set of observations, was widened to nine inches for a second set and to twelve inches for a third set. Observations were made during daylight hours and then repeated during the hours of darkness. Paint lines were new and clear in appearance. The paint was ordinary pavement paint of the non-reflectorized variety. All observations were made during ideal weather conditions, including dry pavements, clear atmosphere, and with no snow in the area.

A minimum of one hundred observations per set was made on George Street at Sherman Avenue and on Orchard Street at Elm Street. Due to the larger dispersion of the stopping points on Boulevard at Chapel Street, a minimum of two hundred observations per set was made.

Office Procedures

The values for the distances from the near curb line to the stopping points of the vehicles for each set of observations were arranged in order of magnitude. A distribution curb of the stopping points was plotted for each array of data thus compiled. These distribution curves were then compared and any significant changes in the pattern of the stopping points were noted. The range of the stopping points, the modal value, the standard deviation of the mean and the percentage of vehicles stopping within the crosswalk area are shown in Table II. A criterion was developed for determining the stopping points of vehicles at unmarked intersections.

Results of the Study

No Marking at the Intersections

The comparison of the distribution curves of the observations made without markings showed no apparent correlation in the pattern of the stopping points of the vehicles at the different intersections. Generally, these curves did not show any distinct modal peak but a rather flat mode and wide dispersion. Also, the stopping points extended very close to and in some cases beyond the near curb line.

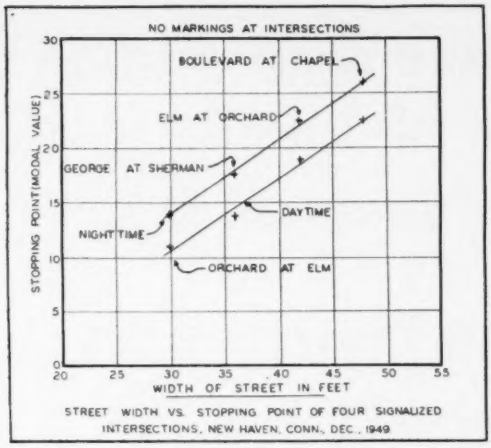
It was attempted to determine what criterion the motorists used in stopping at the various intersections. The possibility of a sight distance restriction around the corners of the intersections was investigated, the supposition being that the drivers would stop at the point where the sight distance restriction "opened up" and the view around the corner became relatively clear. This possibility proved fruitless, however, because although the vehicles on Boulevard at Chapel Street stopped in approximately this position, those at the other two intersections stopped beyond this point, nearer the curb line. Other possible reference points that the motorists could have been using were examined. These were: the distance from the traffic signal to the stopping point (mounting height of the signal being taken into account), distance to the far curb, distance to the center of the intersecting street, sight restriction to the right only and sight restriction to the left only. All these proved equally inconsistent.

Lastly, the relation of the stopping point to the width of the street traveled on was investigated. As streets of three widths had been studied, thirty, thirty-six, and forty-eight foot widths on Orchard Street, George Street, and

TABLE II

RANGE, MODAL VALUES, PERCENTAGE STOPPING IN CROSSWALK AREA, AND THE STANDARD DEVIATION OF THE MEAN OF THE STOPPING POINT OBSERVATIONS

	Daytime				Nighttime			
	range	modal value	% stop. in cross-walk	std. dev. of the mean	range	modal value	% stop. in cross-walk	std. dev. of the mean
WITH NO MARKINGS								
Boulevard at Chapel Street	48′	22.6′	13.5	.57′	44′	26.1′	9.5	.31′
Orchard Street at Elm Street	33′	11.2′	68.0	.46′	29′	14.1′	59.0	.43′
George Street at Sherman Avenue	37′	13.9′	41.0	.57′	37′	17.7′	29.0	.60′
Elm Street at Orchard Street	35′	19.1′	2.0	.61′	42′	22.8′	8.0	.62′
WITH CROSSWALK LINES								
Boulevard at Chapel Street	28′	17.1′	9.0	.33′	34′	18.8′	6.0	.34′
Orchard Street at Elm Street	27′	21.5′	9.0	.37′	30′	19.6′	6.0	.33′
George Street at Sherman Avenue	25′	16.8′	13.0	.26′	31′	16.9′	8.0	.62′
WITH CROSSWALK AND STOP LINES								
George Street at Sherman Avenue								
6″ stop line	26′	17.5′	7.0	.40′	25′	19.8′	9.0	.40′
9″ stop line	29′	16.7′	6.0	.41′	23′	15.4′	2.0	.36′
12″ stop line	29′	14.6′	11.0	.46′	26′	19.6′	8.0	.54′



STREET WIDTH VS. STOPPING POINT OF FOUR SIGNALIZED INTERSECTIONS, NEW HAVEN, CONN., DEC., 1949

Fig. 1

Boulevard, respectively, three separate relationships were obtained. When these three points were plotted on a graph of street width vs. modal stopping point, a general straight line relationship was indicated (see Fig. 1). However, the fallacy of establishing a relationship with only three points led to observations being made on a fourth street, forty-two feet wide, Elm Street at Orchard Street. When this fourth point was plotted on the graph it verified the original straight line relationship. This relationship is: during the daytime at unmarked signalized intersections, vehicles stop at a point which is at a distance from the near curb line equal to two-thirds of the street width, minus nine feet. A similar relationship applies at night; however on streets of the same width motorists tend to stop three feet farther back from the near curb line at night than they do in the daytime.

Crosswalk Lines at Intersections

The distribution curves for the observations made at each of the intersections observed with crosswalk lines all bear the same general relationship to the near crosswalk line. The modal peaks of these curves are more distinct than those obtained for the observations made with no markings. The range of the stopping points decreased considerably over what it was when no markings were used with only one exception, and that is on Orchard Street at Elm Street at night. These curves show a consistent relationship between the stopping points and the near crosswalk line between the various intersections studied, with the modal values of the stopping points in approximately the same relative position for each intersection, approximately five and one-half feet from the near crosswalk line.

This all indicates that the motorists shifted their reference for stopping from that determined by the width of the street to that of the near crosswalk line. There is no consistent difference between the daytime observations and the night-time observations.

It can be said that the painting of crosswalk lines at a signalized intersection will effect a control on the stopping points of vehicles. The amount of this control will depend upon the width of the street treated and the distance from the near crosswalk line to the near curb line.

If, for instance, the street under consideration is wide and the near crosswalk line is fairly close to the near curb line, it is possible that the width of the street will influence the motorists to stop farther back than they would if crosswalk lines were painted. In this case it would be better not to paint crosswalk lines if the reason for applying them is to cause motorists to stop farther back. If the desire is to have them stop closer to the intersection, then crosswalks will aid in doing this as illustrated on Boulevard at Chapel Street.

On narrower streets crosswalk lines will cause motorists to stop back of their normal stopping point. This is illustrated by the observations on Orchard Street at Elm Street.

Crosswalk and Stop Lines at Intersections

In analyzing the distribution curves of the observations made on George Street at Sherman Avenue with crosswalk and stop lines there was no consistent pattern as the stop line was increased in width from six to nine and then to twelve inches in width.

For the daytime observation with a six-inch stop line the modal value of the stopping points moved back a fraction of a foot from where it was with only crosswalk lines and there was a decrease in the number of vehicles stopping in the crosswalk area from 13 to 7 percent. With a nine-inch stop line the modal value moved forward to about the same place it was with only a crosswalk line but there was a decrease in the number of vehicles stopping in the crosswalk area as compared to the observations made with a six-inch stop line from 7 to 6 percent. When the stop line was increased to twelve inches the modal value for the stopping points moved forward an additional two feet and the number of vehicles stopping within the crosswalk area increased from 6 to 11 percent as compared to the observations made with a nine-inch stop line. This shows a decrease in the amount of control on the stopping point of vehicles as compared to either the nine or the six-inch stop lines.

The observations at night show even greater inconsistencies. Starting with the observations made with only crosswalk lines painted and progressing through the observations made with six, nine and twelve-inch stop lines respectively the modal values of the stopping points change from 16.9, to 19.8, to 15.4, then to 19.6 feet. The percentage of vehicles stopping within the crosswalk area change from 8, to 9, to 2, and then to 8. The observations made with the nine-inch line seem to be extremely radical and no reason could be found to explain this inconsistency. However, the results of the six and twelve-inch stop lines do not show any decrease in the number of vehicles stopping within the crosswalk area as compared to the results of the crosswalk lines alone.

These results indicate that the amount of increased control of vehicle stopping points that may be obtained by painting stop lines in advance of the crosswalk lines is small and not consistent.

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Businessmen's Conference on Urban Problems - Chamber of Commerce of United States, Washington, D.C.

The Grand Rapids Parking Improvement Plan

Statement By Howard F. Baxter
Chairman, Automobile Parking Authority, Grand Rapids, Michigan

Through the courtesy of the Chamber of Commerce of the United States, "Traffic Engineering" magazine is reporting two panel discussions of interest to subscribers. The second panel discussion will appear in the April and May issues of the magazine. A transcript of the entire conference will be published and is available at nominal cost.

METROPOLITAN Grand Rapids includes a total population of 230,000 persons, some 700 industrial plants employing 49,000 people and having an annual payroll of $147,000,000, seven financial institutions having aggregate deposits and resources of slightly under a half billion dollars, and 11 hotels with 2500 rooms. It has what is reported to be the highest per capita automobile registration in the United States—one car for every two persons.

It is facing the same parking and traffic problems as other cities, augmented by the fact that its central business district is concentrated within a small area paying 8 to 10 percent of the real estate taxes, which is the primary source of city income. The usual neighborhood business centers have developed but are beginning to lose business to other centers being built just outside the city providing adequate free off-street parking.

The City Commission adopted a recommendation of the Planning Commission creating a Parking Authority of nine: the Mayor, City Manager, and seven business men serving without compensation. There were three principles followed in selecting these citizens: (1) integrity and financial standing beyond question; (2) no direct interest in real estate near any possible parking site; (3) a record of non-political civic service.

Although private enterprise is favored, public ownership of off-street parking was adopted because the right of eminent domain is necessary to acquire suitable sites. Operation is to be by private enterprise under lease arrangements. As an amendment to the Michigan Revenue Bond Act permitting the issuance of tax free revenue bonds to provide off-street parking facilities, and as the Michigan Supreme Court handed down a unanimous decision upholding condemnation rights and financing of off-street parking facilities in that manner, we adopted that method.

Because of greater location convenience, less traffic congestion and shorter emptying time, we planned several parking units instead of one large one. Opposition developed among the existing parking lot operators and owners. We invited them to our meetings and gave consideration to their suggestions. Throughout our deliberations we kept fully informed all members of the Authority, individual City Commissioners, city officials, public groups, newspaper editors, and the opposition.

From an origination and destination study of the State Highway Department, estimates by the Planning Commission based on national standards, and direct information from strategically located parking lots, we determined that there was a demand for 6000 more parking spaces in the central district. City-wide support for the program was secured by including from the initial stages, parking lots in the neighborhood shopping centers. The tentative master plan, publicly presented, included 18 sites in the central business district and 4 in the neighborhood shopping centers. This was followed by appraisals, negotiations for purchase options, and estimates of parking capacities for each location. With these data available, the City Commission authorized the employment of a full-time Director; Ramp Buildings Corporation of New York as engineers; Miller, Canfield, Paddock & Stone of Detroit as legal advisors; Watling, Lerchen & Co. Detroit office as financial consultants; and J. & G. Daverman Co. as local architects for the first structure.

An ordinance was prepared, passed by the City Commission after further public hearings, and approved by the Michigan Municipal Finance Commission creating an Automobile Parking System including both off and on-street parking revenues. The latter averaged $114,000 annual net revenue for the last three years. It authorized the ultimate issuance of $2,435,000 30-year revenue bonds which are tax exempt, and which can never become a general obligation of the city. Of these $1,600,000 provide for three structures

in the central business district, $435,000 for four parking lots in four neighborhood shopping centers, which lots can be financed only if a competent engineering firm approved by the Michigan Municipal Finance Commission states they will be self-supporting. The balance of $400,000 can be sold any time before July 1, 1953 to provide facilities anywhere in the city, provided a similar satisfactory opinion is secured. The bond issue is open ended and further additional bonds can be issued after that date, provided the net revenues of the system for each of the two preceding operating years are equal to not less than 150% of the highest annual requirement for principal and interest on all bonds thereafter becoming due.

The first $800,000 have been sold at an interest rate of 2.33075, bids being received from 24 investment houses which were organized into 7 syndicates. This provided for one 5-level structure and the site for the second project. Engineering surveys are now being made of the four neighborhood shopping centers, on the outcome of which will depend the building of those parking lots.

Financing Parking Facilities and Joint Parking Facility-Bomb Shelters

Statement By Fred W. Moe
President, Ramp Buildings Corporation, New York City

Parking Facilities

THE development and financing of parking facilities in our cities is undertaken by either a private firm or group of firms in a benefited area or by the municipality through a Parking Authority or other authorized agency.

Under private enterprise development a mortgage bond issue is arranged. The mortgage usually approximates, in well conceived projects, ⅔ of the total development cost, with ⅓ of the total cost represented by equity capital supplied by the developer. These mortgages normally run for a period of 20 years, carry an interest rate of about 4%, and are retired to about one-half the face amount at the end of the 20-year period. The number of these developments is in the hundreds.

Another form of financing by private enterprise which has come into limited use is the so-called "Sell-Lease" type. In this case an investor such as a life insurance company purchases the completed facility at cost and leases back to the owner-developer for a long-term period. An example of this is the Shillito Department Store 1,000-car garage in Cincinnati.

The development and financing of municipal programs fall into five principal patterns:

1. Benefit: Use district and special tax assessment which follows the well-established procedure developed in connection with the financing of other types of municipal improvements. (Kalamazoo, Michigan, is a good example.)
2. General Obligation Bonds: This method of financing is familiar to all of you. It offers the advantage of low interest rates since the credit of the city is behind the bonds. The disadvantage is that most of our cities have already borrowed up to their debt limit.
3. Revenue Bonds: This method of financing permits the City to assume no obligation. Interest and amortization of the bonds must be realized out of net revenue of the business. Quite generally the City sets aside a certain predetermined revenue from parking meters to subsidize any deficiency in bond service payments. This is well illustrated by the Grand Rapids plan. After a careful study to develop a program, revenue bonds were sold on September 11th of last year at the very low interest rate of 2.33%.
4. Combination of Private Interests and The Municipality: In this method the city may use its power of condemnation to assemble and acquire suitable land area. The City then resells the acquired land at cost to private interests for private development, financing and operation. Reasonable abatement of taxes during a prearranged number of years is usually arranged, on the theory that the facility provided is a much-needed public service.
5. Pay-As-You-Go Plan: In this procedure funds are used which have previously been earned from parking lots and/or parking meters. Miami Beach, Florida, developed a system of parking lots by means of such a program. In 1949, however, the City arranged a bond issue to complete its program in order to obtain land before it increased in price.

Joint Parking Facility—Bomb Shelter

In this relatively new but important need to provide adequate defense measures for the civilian population in congested areas of large cities, it is generally accepted that the type of construction most useful for the protection of large numbers of people against atomic attack, *in both form and location* is that type which would ordinarily be used in the construction of an underground garage. It follows from this that the underground structure might well be constructed of reinforced concrete. Greater stability may be obtained if earthquake resistant design is used, as is the required design of reinforced concrete structures on the Pacific Coast.

The minimum depth of earth above the structure to strain or divert the gamma rays, heat and nuclear particles of an atomic bomb burst, should be no less than 5 feet.

Regarding the financing of such structures I understand that the Klein Bill #9710 introduced in The House of Representatives was referred last September to the Committee on Armed Services. This Bill would provide for the creation of a Municipal Defense Authority to assist municipalities in conducting surveys to determine the need for joint underground garage bomb shelters. $25,000,000 would be made available for the preparation of preliminary plans for construction of such facilities. In addition this Bill would provide an appropriation of $2,000,000,000 to assist in the actual construction of the facilities for approved projects.

I approve the bill in principle for the following reasons:

1. The Federal Government is the logical agency to develop and coordinate a defense program.
2. All of our large cities are suffering from a shortage of parking facilities.
3. Desirable locations for garages represent the most desirable locations for bomb shelters.
4. Similar construction requirements apply to both facilities.
5. Since both the city and Federal Government are vitally interested in similar construction on the same location it is logical that the Federal Government should participate.

It seems logical for the Federal Government to participate in either of the following ways:

1. *Assuming the structure to be used entirely as a garage until warning of an attack:* Let us assume that an economic study of the proposed facility shows that it would be only 75% self-sustaining at the present time. There are such locations, where parking demand has not yet reached the point to justify economically a large structure. Under these conditions, the Federal Government should participate to the extent of the deficit, in my assumed case, this would represent 25% of the cost.
2. *Assuming the structure to be used partially as a parking garage, with a portion of it set aside for emergency use and containing emergency supplies and equipment:* In this event, the Federal Government should assist in construction in a proportionate amount equal to the portion of the structure to be set aside for emergency use.

Parking Meter Revenues for Off-Street Parking Facilities

Statement By David R. Levin
U. S. Bureau of Public Roads

THE parking meter has become an accepted American institution. As of January 1, 1950, an estimated 818,300 meters were in operation at the curb in at least 2,240 municipalities in all but one of the 48 States. The parking meter has made possible a golden flow of literally billions of pennies and nickels into city coffers. Motorist curb-parkers paid more than an estimated 46¾ million dollars in parking meter fees during 1949.

Yet despite this widespread usage and the revenue-producing capacity of the parking meter, its potentialities have remained largely untapped and unexplored as far as off-street parking accommodations are concerned. Investigations in a large number of cities reveal that less than 5 percent of such cities use parking meter receipts for provision of off-street parking facilities.

The laws of only a single state *require* that net parking meter revenues be used for off-street parking facilities, while the statutes of 14 other jurisdictions *authorize* such uses. The parking meter fee, like the automobile registration fee which is its counterpart in the highway field, and the gasoline tax, is levied upon the parker-motorist class with the understanding that it will be used to finance the cost of the parking meter regulation. It seems to be legally implied that if any net revenues remain, such funds shall be applied to measures further alleviating parking difficulties, especially off-street parking facilities. The use of net parking meter funds for non-parking purposes is just as objectionable a diversion of parking funds as is the use of highway revenues for non-highway purposes.

Most of the decisions concerning the validity of parking meter ordinances have held that a police power regulation is valid only if the revenue derived is not disproportionate to the cost of the regulation. Some courts have held that a parking meter ordinance may become a revenue measure, instead of merely a regulatory one, and therefore invalid if the receipts "continuously and by a substantial amount exceed the cost of installation, maintenance and regulation."

Parking meter revenues *are* constantly increasing. The necessary costs of regulating curb parking by means of meters amounts to only 15 to 20 percent of the gross revenues. The balance of the funds so obtained will, sooner or later, invalidate this type of regulation, unless it is applied to further alleviate parking difficulties, in pursuance of the objective for which the fees are levied in the first instance.

Legislation might well be so drawn, therefore, as to *require* (not only *authorize*) the application of net parking meter revenues to the establishment of off-street parking facilities. If this simple suggestion were followed, a forceful impetus would be given to the provision of off-street parking accommodations in central city areas. In 1949, Boston, for example, would have had over $400,000 from its parking meter revenues to spend for an off-street parking program, a sizable sum if capitalized at current rates. Oakland, San Diego, Denver, Minneapolis, and Portland would have had between $300,000 and $350,000. At least 71 other municipalities would have between $75,000 and $250,000 for the purpose, annually. The policy of using net parking meter funds to finance pensions for firemen, for schools, or to reduce the general tax rate is an objectionable practice because a specific class—the parker-motorist—is burdened with a responsibility that ought to be general in its incidence.

The most effective means of resolving parking difficulties is the establishment of an integrated *system* of parking facilities, both curb and off-street. Such an approach has now been fully sanctioned both by the legislature and the Supreme Court in Michigan. Such a broad plan of attack on the parking problem almost certainly could be sustained by the courts in most states. Only through such a coordinated approach can the financial and legal difficulties associated with the parking problem be resolved in the public interest. In the role so conceived, the parking meter fee can become to parking finance what the gasoline tax and the registration fee are to highway finance.

A rare opportunity confronts our cities. For they already have at hand in their parking meters a source of sufficient funds with which to make at least a beginning toward the provision of off-street parking facilities. By so doing, possible future legal difficulties may well be eliminated, involving the issue of revenue versus regulation. Until cities make broad provision for funds for parking purposes, they will continue to muddle along with piecemeal palliatives.

(To be continued in the April issue)

Intersectional Islands and Traffic Accidents

By John J. Dobelek, (Mem., I.T.E.)
Traffic Design Engineer, Traffic Engineering Bureau, City of Detroit, Mich.

THIS PAPER evaluates the effects of a certain type of pedestrain island upon pedestrain accidents and pedestrain crossing habits.

The type of island used is shown in Figure 1. The main features of this island are:

1. Pedestrian platform
2. Pedestrian handrail
3. Approach end designed to deflect vehicles
4. A sloping approach designed to minimize damage to vehicles
5. Lighting

The island used on Warren Avenue in Detroit is of an experimental type and this report should not be construed as an evaluation of this particular design. When future intersectional islands are installed, further research must be done before any design becomes standard for the City of Detroit.

Thirty of these islands were installed on West Warren Avenue from Lawton to Central Avenues inclusive. This section of Warren Avenue is 2.7 miles in length. The pavement width is 72 feet throughout. The islands were installed along the centerline in pairs, one on each side of the intersecting street. At Epworth and at Junction Avenues, only one island was installed because of street car operation on Warren Avenue between these two streets. Since the widest portion of the island is 4.5 feet, there remained a clear width of 33.75 feet of pavement between the curb and the island.

The islands were installed during the period from August 4, 1948 and October 19, 1948.

The one year "before" period used in this analysis is from August 4, 1947 to August 3, 1948. Buses were substituted for streetcars on this street (except between Epworth and Junction, a distance of 3 blocks) on October 26, 1947.

FIGURE 1

Table I
Pedestrians Crossing
WEST WARREN AVENUE
11 a.m.-7 p.m.
July 13, 1948

Intersection	Number of Pedestrians Trapped	Not Trapped	Total	% Trapped
Totals at Signalized Intersections	299	6075	6374	5
Totals at Unsignalized Intersections	2997	3910	6907	43

August 22, 1949

Intersection	Number of Pedestrians Trapped	Not Trapped	Total	% Trapped
Totals at Signalized Intersections	1059	6034	7093	15
Totals at Unsignalized Intersections	4635	3155	7790	59

Resurfacing, including covering the streetcar tracks, extended over the period from June 1, 1948 through October, 1948. The streetcar safety zones were removed over the period June 22, 1948 to July 1, 1948. Although certain street characteristics were not stable during the "before" period, the over-all picture permits valid comparison with the "after" period. The one year "after" period is October 20, 1948 to October 19, 1949. All physical conditions affecting traffic were constant during this period.

Table I shows the number of pedestrians observed crossing Warren Avenue at the intersections at which pedestrian islands were installed. This table also shows the number of pedestrians caught in the street between opposing traffic streams. The "before" observations were made after the streetcar safety zones were removed, while the "after" observations were made after the new pedestrian islands had been in place almost a year.

The pedestrian crossing characteristics of the street devoid of any pedestrian refuges can therefore be directly compared with these characteristics on the same street with the new type pedestrian islands.

The table shows that there was no significant change in the total number of pedestrians crossing Warren Avenue. However, there was a considerable change in the number of pedestrians "trapped" in the middle of the street. While 25 percent of the total number crossing were trapped by opposing traffic streams when there were no pedestrian refuges, 38 percent utilized the new pedestrian islands. For signalized intersections, the percentage thus "trapped" rose from 5 percent to 15 percent, while at unsignalized intersections the changes were from 43 percent to 59 percent.

This would indicate that pedestrians took advantage of

Table II
Warren Avenue Pedestrian Accidents
Lawton to Dearborn East Limit
Before—August 4, 1947 to August 3, 1948
After—October 20, 1948 to October 19, 1949

Accident Type	Before	After	% Reduction
Hit at mid-block or when walking between parked cars	5	2	60
Hit while crossing intersection with safety zones or islands	22	7	68
Hit while crossing intersection without safety zones or islands	8	5	37
TOTAL	35	14	60

a place of refuge in the center of the street in order to complete a crossing in two stages, crossing only one direction of traffic in each stage. This type of crossing is certainly safer than one in which the pedestrian is forced to cross two opposing streams of traffic without the benefit of a refuge between these two streams.

This safer type of a pedestrian crossing should be reflected in the accident history. Table II summarizes pedestrian accidents occurring before and after the new islands were installed. Islands can be expected to protect primarily those pedestrians apt to be struck by a "through" vehicle. They cannot be expected to give equal protection to pedestrians endangered by turning vehicles. Furthermore, islands should have more effect on accidents in which the pedestrian is struck while crossing the far half of the pavement than on those in which the pedestrian was struck while crossing the first half of the roadway. This is based on the premise that a pedestrian who has safely negotiated the first half of his crossing has been duly observant and careful when he stepped from the curb into the street. Since other pedestrians are known to step from the curb without exercising due care and caution, the presence of an island cannot prevent them from being struck during the first half of his crossing. However, the presence of a center refuge should encourage the careful pedestrian to wait for a reasonable gap in the traffic stream in the first half of the street, and thus have an effect in reducing this type of accident.

Table II shows a significant reduction in accidents involving pedestrians crossing Warren Avenue and a "through" vehicle. During the "before" period, there were 35 accidents of this type compared with only 14 during the "after" period, a reduction of 60 percent.

The effect of the new pedestrian island was most noticeable at those locations which during the "before" period had the streetcar safey zone adjacent to streetcar track which were subsequently replaced with pedestrian islands on the centerline of the street. Pedestrian accidents at these locations dcreased from 22 to 7 illustrating the increased safety obtained when a pedestrian is required to cross only one direction of traffic at a time.

However, there were reductions in pedestrian accidents at places not provided with either streetcar safety zones or new pedestrian islands. Mid-block pedestrian accidents were reduced from 5 to 2, while pedestrian accidents at unprotected intersections were reduced from 8 to 5. The effect of the pedestrian islands in separating opposing streams obviously extended some distance in either direction from the island.

(See INTERSECTIONAL ISLANDS, *page 165)*

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By A. R. Pepper
Traffic Engineer
Colorado State Highway Department

Two portable signal units manually operated by a State Patrol Officer are providing the aspirin to combat the traffic headache arising when the Mile High Kennel Club located just outside Denver, Colorado, releases upon a heavily traveled highway upwards of 6,000 vehicles in a 45-minute period. Although similar concentrations of cars must be handled at drive-in theaters and other amusement centers, the confusion accompanying the nightly exodus from the Kennel Club was especially acute and challenging because of the track's proximity to the junction of highway U.S. 6-85 which alone carries an average 24-hour traffic volume of 14,290 vehicles per day—one of the highest traffic counts in the State. The stretch of highway immediately adjacent to the track entrance provides a two-lane facility in each direction separated by a median strip with acceleration and deceleration lanes bordering the outside lanes.

Since the problem of funneling traffic to and from the dog track exists only during the hours between early evening and midnight of the three-month racing season, automatic signal control was considered neither practical nor warranted on a 24-hour basis. Consequently, to handle the irregular tides of traffic and control the heavy turning movement, signal units designed for manual operation were equipped with small wheels and a push-bar handle to facilitate movement off the highway following the nightly events. To afford the patrolman operator a commanding view in all directions, the signals are positioned strategically at the extremities of the median strips at the intersection as shown in the photographs. Appropriate signs and pavement markings including sizable stencilled arrows serve to channelize traffic for the turning maneuvers and provide directional guidance. Needless to say, the presence of the patrolman adds unmistakable prestige and authority to the controls.

This particular application of signs, portable signals, and markings has proved an effective and economical expedient in clearing traffic through the intersection. Prior to the use of the signal facility, traffic to and from the track swamped existing facilities and required from three to four officers to relieve the severe congestion and long delays at this bottleneck. Cooperation of the track management in routing vehicles from the huge parking lot on the Kennel Club grounds has contributed substantially to the success of the improvements.

Built in the mechanical shop of the State Highway Department's Traffic Division at a total cost of less than $1,200, each signal unit consists of a three-section, four-direction signal head with post-top mount set into a 4x4 foot base reflectorized in a diagonal stripe design. The entire unit has an overall height of 13½ ft. and weighs approximately 350 lbs. Extension cords from the unit plug into electric outlets extending from an underground power hookup. Types of portable traffic signals for school pedestrian control are on the market but are self-contained and equipped for battery operation.

INTERSECTIONAL ISLANDS

(Continued from page 164)

It can be concluded that intersection pedestrian islands installed to separate opposing traffic streams are a great improvement over the streetcar safety zone adjacent to the car track. In view of the observed changes in pedestrian crossing characteristics it is also concluded that these center-installed pedestrian islands would have substantially reduced pedestrian accidents at locations which previously had no pedestrian refuges. Accidents at safety zone or pedestrian island locations decreasing from 22 to 7 (68%) while at unprotected locations they decreased from 8 to 5 (37%). At the same time, city-wide pedestrian accidents increased three percent.

These comparisons are even more significant when it is pointed out that traffic volumes on this stretch of Warren Avenue increased 30 percent during the two periods studied.

TRAFFIC NEWS

Handbook Receives International Recognition

The Journal of the Institution of Municipal Engineers of Great Britain recently published an interesting review of the 1950 edition of the "Traffic Engineering Handbook" as follows:

This second edition of the Handbook of the American Institute of Traffic Engineers deserves thorough scrutiny by the Highway Engineers of this country from more points of view than one. It is an admirable volume, completely rewritten since the first edition was published in 1941. Claiming to be not a textbook but to collate in one volume basic traffic engineering data as a guide to best practice, this book should either be found on the shelves of every British road engineer or one should be compiled for him here. The latter would be preferable, in view of the different conditions prevailing in the two countries.

The subjects dealt with by the sixteen contributors, and therefore presumably regarded as being within the special province of the Traffic Engineer, include Statistics (of traffic volume, vehicle numbers, road mileage, etc.), the Signs and Traffic Signals, Road Capacities and Design, and Highway Lighting. Present American practice in these matters is clearly described. References are given at the end of each chapter to textbooks or other publications from which further detailed information may be sought. Missing, rather strangely, is any reference to economic studies, i.e., to the comparison of economic gain by reducing delay and saving accidents, as against constructional cost.

Road engineers on this side of the Atlantic, who have been accustomed to take the subjects dealt with by this handbook in their stride, might do well to consider whether Traffic Engineering should not be recognized as a branch of their professional duties requiring the same specialist attention as such subjects as bridge design, soil stabilization and road surfacing. Failure on their part to do so might have the undesirable effect of creating yet another breed of independent and narrow specialists in the professional field, a highly undesirable outcome which should be firmly nipped in the bud.

G. T. Bennett

Research Reveals Rock Salt Not Cause of Car Corrosion

A study of automobile corrosion made by the International Nickel Company, Inc. provides good news for street and highway commissioners who use rock salt for fast and inexpensive removal of snow and ice.

Discussing the assumption that rock salt is responsible for corrosion, the study confirms the fact that cars will rust whether or not a community uses rock salt and points out that "field surveys have shown almost as much corrosion of cars in areas where salt treatments of roads are never employed as in regions where they are used regularly. Furthermore, surfaces located where they are shielded from salt splashes from the road have been found to suffer as much damage as those freely exposed to such splashes."

Putting the blame for corrosion upon moisture, the report states that "the humidity of the atmosphere where a car is kept or parked is more important than salt treatment of roads in determining the extent of corrosion of automobile underbodies. . . Steel specimens exposed to atmospheric corrosion without contact with brine were corroded twice as much as duplicate specimens attached under a test car driven over a salt treated road and garaged in a humid atmosphere."

In an effort to reduce corrosion complaints, which have been a problem in southern states where no rock salt is ever used, automobile manufacturers have changed body designs on new models to allow for increased use of drainage and ventilation holes. One of the major reasons for rusting, it was found, is in the fact that road dirt clogs drainage holes and keeps seepage water from draining properly. The dirt holds moisture against metal parts and in a short time causes rust.

In another effort to reduce rusting, manufacturers have perfected better methods of surface finish and new anti-rust coatings and finishes. Since metal covered with paint or other protective coatings will not rust, research effort has been directed to finding a coating which will not readily chip or scratch.

Continued Maintenance Of Highway Transportation System Seen Vital to Nation's Security

Action to insure the continued development and maintenance of the highway transportation of the United States as one of the most vitally needed measures for national security was strongly urged recently in a joint meeting of the Board of Governors and Administrative Committee of the National Highway Users Conference.

The National Highway Users Conference is composed of more than thirty organizations representing millions of highway users including the private motorist and those in farming, industry, merchandising, trucking and manufacturing. Albert Bradley, Executive Vice-President of General Motors, is Chairman of the NHUC Board of Governors and Arthur C. Butler is NHUC Director.

Recommendations for Highway Mobilization

Today's three-fold action of the highway user group include:

1. Passage of a resolution urging that priority be given to the improvement of the Interstate System of Highways and other strategic roads, especially defense plant and military access roads,

as road building supplies become increasingly short.
2. Called for maintaining of essential highway transportation facilities to assure meeting military needs as well as those of the supporting civilian economy whose sound and efficient functioning is necessarily vital to a strong national defense.
3. Agreement with a resolution recently passed at the Annual Meeting of the American Association of State Highway Officials calling for "a continuing and accelerated program of highway construction and maintenance" to sustain the nation's defense and economic requirements.

The Lifelines of Defense

The NHUC resolution called the 40,000 miles of the Interstate System of Highways the "lifelines of defense in wartime and the principal arteries of commerce in peacetime" and it urged the states to correct "critical deficiencies" in all roads which are "most vital to defense."

The highway user group said that the nation's road system is inadequate in many sections because the rise in vehicle registration has been startling and unprecedented; highway departments have been unable to catch up with the highway work deferred during World War II; design standards have risen; and due to political pressures, too much money has been spent on unnecessary projects.

Supports State Officials' Position

In a final action at a recent meeting, the highway user group voted its approval and support of a resolution adopted by the American Association of State Highway Officials which said that the highways of the nation are now in a "seriously weakened condition resulting from inadequate maintenance and construction during the depression and neglect during the last war." The AASHO resolution went on to urge an accelerated highway construction program to meet both the defense and economic needs of the nation.

Field Tests Show 25-Year Improvement In Gas, Vehicles

A field demonstration to show that today's motor vehicles and gasoline are more efficient and economical than the same products were in 1925 was conducted recently by the Oil Industry Information Committee.

The road tests took place about one mile south of Alexandria, Virginia, and consisted of an acceleration and miles-per-gallon demonstration of older vehicles and fuels, compared with those of the present day.

A 1921 Cadillac burning 1925 gasoline accelerated 830 feet in 20 seconds while a 1950 Cadillac burning 1950 gasoline accelerated 1190 feet, or 43½% more in the same time. A 1950 Cadillac burning 1950 gasoline accelerated a distance of 33% more than that of another 1950 Cadillac burning 1925 gasoline.

In the fuels economy test a 1921 Cadillac was operated at the rate of 12.2 miles per gallon of 1925 gasoline; a 1949 Oldsmobile burning 1925 gasoline was operated at the rate of 15 miles per gallon while a 1950 Oldsmobile with a stepped-up compression ratio, burning 1950 gasoline operated at the rate of 22.2 miles per gallon.

Data was presented to show that gasoline (exclusive of taxes) was cheaper today than in 1925 and that two gallons of 1950 gasoline are worth as much as three gallons of the 1925 product.

Defense Dept. Moves to Control Overweight Truck Shipments

In a letter to all state governors and to the Board of Commissioners of the District of Columbia, the Department of Defense has proposed a method for curbing non-defense overweight truck shipments by some irresponsible truck operators.

The Defense Department states that it has received reports that the increasing movement of defense cargoes has enabled some truckers to claim urgent military necessity as an excuse for violating weight and size restrictions on highway movements.

The letter suggests that each governor designate one official who will be authorized to grant waivers or permits on illegal loads when requested by authorized military representatives to meet urgent military needs. Under no circumstances, the letter states, will carriers be authorized to represent the military services in seeking such permits.

The Department of the Army will be charged with the responsibility for initial establishment of relations with the state representatives named by the governors. Thereafter, properly accredited representatives of the three military departments will work directly with state officials to arrange necessary clearance of important defense highway shipments which may violate state truck regulations.

National Defense

New Zoning Classification for Shopping Centers

Mayor Samuel of Philadelphia sent to City Council recently a proposal to create a new zoning classification, "Shopping Center Districts."

The proposal was based on recommendations made by the City Planning Commission and the Commission's 10-member Technical Advisory Committee on Zoning, of which Albert Quell is chairman.

The purpose of the new classification is to make possible the development of efficient, modern shopping centers in newly developed sections of the City, with adequate provisions for off-street parking. The proposed zoning change would not affect existing commercial buildings or shopping centers.

The proposal contains two main points:

1. The new shopping centers must provide off-street parking facilities computed at the ratio of one square foot of parking area to one square foot of floor area of the shopping center.
2. No building in the shopping center shall be more than three stories, or 35 feet, in height. If the shopping center is located within the same block as a residential district, the buildings must be kept back of the setback line in the residential district.

The new classification would not take effect until the zoning map is changed, by placing the new districts on it. If the ordinance is approved by Council, the Planning Commission will recommend locations for the new centers, based on overall plans, in newly developing sections such as the Northeast.

The advantages of the proposal were listed by the Planning Commission as follows:

1. Grouping of stores and parking facilities in carefully planned locations will mean greater convenience for the shoppers.
2. Concentration of stores in a few locations with off-street parking will reduce traffic congestion.
3. Shopping centers built on modern principles, as provided in the ordinance, will be less subject to obsolescence and deterioration than would be scattered individual shops.

Some of the details of the proposed ordinance are—

Each off-street parking space shall have an area of not less than 200 square feet, exclusive of access drives or aisles.

The requirements for parking areas and the height regulations do not apply to existing structures. The proposed regulations also provide that all business, service or processing shall be conducted wholly within a completely enclosed building, except for automobile

parking, the sale of fuel and accessories, and outdoor dining areas.

Operations and equipment employed and materials used or sold "shall be limited to those which are not objectionable by reason of odor, dust, smoke, noise, vibration or water-borne waste."

Philadelphia City Planning Commission

Detroit Traffic Management Study

The city of Detroit, Michigan, is taking a searching technical look at its management of street traffic as a step toward improved efficiency, relief of congestion and reduction of accidents. Findings of the appraisal study will be used as a guide for official remedial action.

At the request of Mayor Albert E. Cobo, the Foundation has made available to Detroit the services of D. Grant Mickle, Director of the Foundation's Traffic Engineering Division, as advisor to a three-man steering committee appointed by the Mayor. Louis R. Morony, Director of the Foundation's Uniform Laws Division, will assist on phases of the study dealing with review of the city's traffic ordinance and charter.

Official Heads Committee

Members of the study committee are City Controller John Witherspoon, Chairman; Richard Harfst, General Manager, Automobile Club of Michigan; and Donald Slutz, Managing Director, Traffic Safety Association of Detroit. City Traffic Engineer Alger F. Malo will assist the committee.

The study will cover three major points: (1) Essential traffic management functions. (2) Present duties and functions of city departments in respect to traffic. (3) Intergovernmental relationships.

The Detroit study is a refinement and expansion of techniques used in a pilot study completed in Los Angeles, California, in 1948. Findings and recommendations of the Los Angeles study were the basis for subsequent official action which has been credited with accomplishing substantial improvement in traffic administration. Mr. Mickle served as chairman of the Los Angeles Traffic Survey Committee. His work with the Detroit committee takes him back to familiar grounds, for he was City Traffic Engineer of Detroit from 1941 to 1943.

LOOKING AHEAD

MARCH 4-6, 1951—BIRMINGHAM, ALABAMA
Twelfth Annual Southern Safety Conference. Tutwiler Hotel. Contact: Braxton B. Carr, Executive Secretary, Southern Safety Conference, 2120 First Avenue, N., Birmingham 3, Alabama.

APRIL 3-6, 1951—NEW YORK, N. Y.
Twenty-first Annual Greater New York Safety Convention and Exposition. Hotels Statler and Governor Clinton. Contact: Paul F. Stricker, Executive Vice-President, Greater New York Safety Council, Inc., 60 East 42nd Street, New York 17, N. Y.

JUNE 4-8, 1951—CHICAGO, ILLINOIS
Midwest Safety Conference. Congress Hotel. Contact: Joseph F. Stech, Manager, Greater Chicago Safety Council, Suite 805, 10 North Clark Street, Chicago 2, Illinois.

Unusual Catalog on Street Lighting Poles

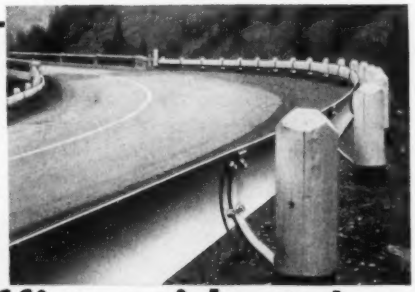
A new, 36-page catalog, devoted entirely to street lighting poles and pertinent engineering data, has just been announced by The Union Metal Manufacturing Company.

The new catalog is believed by company officials to be the most extensive and most comprehensive one ever published on the subject of street lighting poles. For example, despite extensive standardization to permit maximum production economies, nearly 500 design combinations are included, together with simplified specification tables giving complete data on standard mounting heights, bracket spreads and pole sizes available.

According to L. F. Heckmann, Union Metal manager of pole sales, this broad, standard range is intended to permit the selection of precisely the right pole for virtually any condition encountered, as well as a range of styles for any type of thoroughfare including residential streets, boulevards, inter-city highways, modern express freeways, commercial streets and "White Ways." All of the poles referred to are illustrated in clean-cut detail drawings.

Exceeds all state safety specifications

TUTHILL HYWAY GUARD



cuts traffic accidents!

Write for technical brochure today!

Super-strong Hyway Guards safely deflect cars and cushion shock to vehicle, occupants and rail. Easily seen by day or night. Speedy, permanent erection with little or no maintenance required.

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760 W. Polk Street, Chicago 7, Illinois

In addition, the catalog contains considerable data of other types calculated to be of help to pole users and purchasers, such as I.E.S. recommendations, suggested pole sizes for overhead wiring, accessories, modifications, and a wide variety of both day and night photos showing typical installations recognized as conforming with best street lighting practices.

The new catalog is identified as Union Metal Catalog No. 78 and is titled "Monotube Street Lighting Poles." Requests should be directed to The Union Metal Manufacturing Company, Canton 5, Ohio.

New Traffic Organization In Switzerland

Word has been received from Max Troesch, President of the Automobile Club of Switzerland, that he has succeeded in founding a national safety organization for road traffic. Funds were raised by automobile clubs and insurance companies to support the work of this organization.

Items of first importance on the vast program being established are: (1) traffic education in the schools; and (2) regular vehicle inspection.

Stork Presents Traffic Engineer to ITE Headquarters

Your Editor and Executive Secretary proudly announces the birth of another future candidate for ITE membership. Kenneth Stratton Holmes arrived on December 17, 1950—just in time for his first Christmas tree. Before joining the traffic engineering profession in 1975, Kenneth plans to indulge in a successful collegiate football career at Georgia Tech. He weighed ten pounds, ten ounces at birth and Tech authorities have been notified to enroll an All-American fullback in 1968. Mother and son are doing fine but father still has recurring spasms when he contemplates the last-minute dash to the hospital. All traffic regulations were completely ignored in the race to beat the stork by a scant 30 minutes.

Positions Available

Excellent working conditions—permanent positions—good retirement benefits—vacations and sick leave privileges.

Vacancies:

Sr. Traffic Engineer — salary range: $340.00 to $475.00.

Asst. Sr. Traffic Engineer—salary range: $280.00 to $400.00.

Jr. Traffic Engineer — salary range: $250.00 to $330.00.

Please send a detailed statement of your employment record to the Civil Service Board, Room 412, City Hall, Dallas, Texas.

ASSISTANT TRAFFIC ENGINEER

Kansas City Missouri

Description of Work to be Performed: Under supervision he plans and supervises the work assigned to the drafting, clerical and labor personnel in the Traffic Engineering division. He investigates traffic and parking conditions and makes recommendations to the City Traffic Engineer regarding these problems. He analyzes work procedures and recommends changes and may conduct tests of new materials and design new equipment; assists in the preparation of technical data, contracts and work progress reports and does related work.

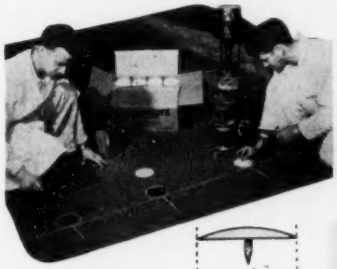
Minimum Qualifications: Graduation from a recognized school of engineering with a B.S. degree in Civil Engineering and one year experience in traffic engineering. A Graduate Certificate in traffic engineering will take the place of the one year experience.

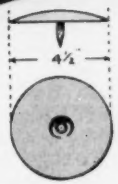
Salary Ranges: $340-$415. Personnel Committee may approve higher than minimum starting salary if warranted by experience and ability of applicant.

Procedure in Filing an Application: Closing date for filing application is March 15, 1951. Application forms and instructions may be secured by writing the Personnel Department, 12th Floor, City Hall, Kansas City, Missouri.

SAVE 50% ON STREET MARKING COSTS WITH DUR-O-LINE

(Available in Safety White, or Traffic Yellow)





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No More Repainting Costs
No More High Labor Costs

- **DUR-O-LINE** markers pay for themselves in one year. Cost of DUR-O-LINE Markers installed equals average cost of 2½ paint jobs.
- **DUR-O-LINE** marked streets are more attractive—the brilliant 4½" markers do not fade or smear.
- **DUR-O-LINE** markers have three times the visibility of painted lines.
- **DUR-O-LINE** markers are designed to withstand severest traffic conditions. Load tests prove that they can carry 15 times the maximum legal load limit.
- **DUR-O-LINE** markers are easy to install. A two-man crew can lay 100 markers in an hour. No traffic tie-ups. Traffic can run over markers as workmen lay them.
- **DUR-O-LINE** markers can be used on either asphalt or concrete pavements.

TRIAL OFFER

As a special offer 200 markers and laying material for 400 to 1200 linear feet is available for only $52. ($67. for concrete streets.) Test this sample offer on your busiest street. Shipped prepaid.

TRAFFIC SAFETY SUPPLY CO.
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Secretary's Column

Once again your Executive Secretary wishes to take this opportunity to thank the many members and friends who sent us Christmas cards. We greatly appreciate this expression of goodwill and regret that we cannot reply to each of you in kind. Forgetting for the moment the international situation, we wish each and every member and subscriber a successful and prosperous 1951.

The Board of Direction held its quarterly meeting in Washington on January 8th. At that time, the Board received the official results of the first commercial audit of Institute accounts. The audit was made by an Assistant Professor of Economics at Yale University who acted as Accounting Consultant.

Due to the change in the fiscal year to conform with the calendar year, the audit covered the 15-month period from October 1949 to December 31, 1950. Financial operations approximated $45,000.00 for this period. Considering budgetary allowable deficit, the net loss was in the amount of approximately $1200.00. The cash balance in the Operating Account on December 31, 1950, was $5,692.48. Combining this with $6,822.12 in the Fee Fund, and balancing other assets and liabilities, it was found that the Institute has an estimated net worth of $12,256.82. The Consultant reported to the Board that all accounts were in order and that all records had been maintained accurately and properly, thereby greatly facilitating the preparation of the audit.

The result of balloting on the amendments to the Constitution and By-Laws were reported by the Executive Secretary. Two hundred and eighty-nine ballots were canvassed on December 1, 1950. Less than five percent of the ballots returned negative votes, thereby making the various changes to the Institute By-Laws effective January 1, 1951.

The Executive Secretary reported that publication of the Yearbook would be delayed due to the necessity for awaiting action on membership of the Board at this meeting and, also, final confirmation of appointments to the various technical committees. Handbook sales were reported to have reached a total of 2,393 copies up to January 1, 1951. Mr. Nathan Cherniack presented a detailed report on the activities of the various technical committees. He reported that due to "advanced planning" all technical committees were functioning without the usual three-month time lag. The technical council, consisting of the chairmen of the six technical committees, Vice-President Cherniack as Chairman, the Research Coordinator and the Editor for the Reference Notebook, is rapidly being organized and is currently in the process of establishing rules of procedure. It is anticipated that the Traffic Engineer's Reference Notebook will be initiated sometime during the current Institute year.

The chairmen of the 1951 Annual Meeting Committees reported considerable progress. The Los Angeles group is anticipating approximately 500 delegates and wives next September. An interesting program has been planned to cover a full four-day meeting beginning on Monday, September 24, 1951. Arrangements are currently being made to canvass the membership to determine if a special train out of Chicago for Eastern delegates would be desirable.

In view of a special invitation from the President of the 1952 Centennial of Engineering, the Board selected Chicago as the site for the Institute's 1952 Annual Meeting. Approximately eighty-five national engineering societies plan to hold their annual meetings between September 3 and 13, 1952, in Chicago, to celebrate the 100th anniversary of the founding of the first national engineering society in the United States—the American Society of Civil Engineers. This will be an oppportunity rarely afforded for the Institute to participate on a common meeting ground with other national engineering organizations. More details will be announced later.

Several new members and transfers were approved by the Board and three individuals were selected to the Honorary grade. All of these new members will be reported in an early issue of "Traffic Engineering" magazine.

The Board approved an operating budget for the 1951 fiscal year in the approximate amount of $35,000.00 and adjourned with a tentative commitment to hold the next quarterly meeting somewhere in the middlewest.

Robert S. Holmes

1952 ANNUAL MEETING—ITE
To be held in Chicago, Illinois.
Tentative dates—September 8-11, 1952.

New Appointment

ROBERT A. MITCHELL resigned his position as Chief of the Bureau of Traffic Engineering on January 1, 1951, to begin his new duties with the consulting firm of Gannett, Fleming, Corddry and Carpenter, Inc. of Harrisburg, Pennsylvania. Bob will assume the duties and responsibilities as head of a newly established Traffic Engineering Division of the firm. Announcement

was made of the position vacancy in the December issue of "Traffic Engineering" magazine. For the past few years the firm has been in almost constant need of full-time competent help on traffic engineering matters. Bob will bring years of public service and part-time consulting work to the firm.

Mitchell is a graduate of Cornell University in Architecture and Engineering and recently completed twenty years of service with the City of Philadelphia. Since May 1936, he held the position of Chief of the Bureau of Traffic Engineering.

Bob has been active in national traffic affairs for many years. He served as a member of the National Safety Council's Committee on Pedestrian Control and Protection from 1937-47. He also served as a member of the American Public Works Association Committee on Traffic Control for a similar period. He was Chairman of the Editorial Board responsible for the preparation of the 1950 edition of the "Traffic Engineering Handbook." He is currently Chairman of the American Road Builders' Association Committee on Traffic Control and Chairman of the Traffic Signal Committee of the Joint Committee on Uniform Traffic Control Devices.

Bob became a member of the Institute of Traffic Engineers in October 1934 and served successively as Director (1943-'45), Vice-President (1945-'47), and President (1947-'49). In addition to membership in the ITE, Bob

is a member of the Pennsylvania Society of Professional Engineers and Engineers' Club of Philadelphia. He is also a registered professional engineer in the State of Pennsylvania.

SECTION NEWS

Midwest Section

The December meeting of the Midwest Section, ITE, was held December 19, 1950, in Chicago with 15 members present. The excellent turkey dinner featured the gourmandic talents of one of the members, who, still being hungry after finishing his allotted portions, put away an extra platter which had been placed on the table by mistake.

Al Forde and Ted Vanderstempel arranged an interesting program, which followed a short business meeting. The speaker, Mr. Oliver Field, Director, Bureau of Investigation, American Medical Association, assisted by Mr. Steve Kovacs of the American Medical Association, discussed some of the hoaxes and useless devices perpetrated on the public by unethical or psuedo-medical men.

Mr. Field illustrated his talk with a series of slides showing some of the actual advertisements of these items. He also brought along several gadgets which he demonstrated. Although most of these things are harmless as well as useless, Field emphasized that the application or use of such items by a person who has a curable ailment may cause neglect or aggravation of the condition, resulting in a much more serious situation.

Among the items shown by the American Medical Association representatives were a magnetic horsecollar, which is supposed to magnetize the iron in the blood; an "infra-red" hair restorer, which consists of a metal head covering in which is inserted a red Christmas tree light; a plastic dumb-bell, which is supposed to activate the hydrogen atoms of a being and cure almost everything; AND a dangerously radioactive rejuvenator, which gives a very heavy reaction on the geiger counter.

Reported by S. T. Siegel
Associate Editor

New England Section

The December meeting of the New England Section was held at "The Hedges" in New Britain, Connecticut. There were 51 members and guests present.

Bob Mitchell, program director for the meeting, introduced the topic for the evening, "Legal and Economic Problems Created by Limited Access Highways in Urban Areas," and presented the members of the panel, as follows:

Curtis J. Hooper, Director of the Bureau of Traffic—Planning—Design, Connecticut Highway Department.

Harrison W. Hill, Bureau of Rights-of-Way, Connecticut Highway Department. Mr. Hill acted as pinch-hitter for Ed Harris, Director of the Bureau of Rights-of-Way.

L. Theodore Scott-Smith, City Planning Engineer, Waterbury, Connecticut.

Each panel speaker described how the limited-access problem affected his work.

Mr. Hooper reported that the State of Connecticut has many miles of limited-access highway and plans many more. These facilities safeguard the public's investment in roads by preventing the development of non-highway uses which reduce the capacity and safety of roadways. The development of business use along highways is very serious and the state has sometimes found it good economy to purchase such businesses in order to secure the benefits of limited access.

Mr. Hill indicated that the basic premise of the eminent-domain law is the theory that the property owner whose land is taken for public use shall neither be enriched nor impoverished by that act. The law is unrealistic in that it does not consider sentimental values and other such intangibles; further, the law assumes than an exactly fair value can be determined for any piece of property thus affected, a far too simple expression of a very complex problem. In practice there is much leeway allowed for these many frailties of human relations.

Studies by the Bureau of Rights-of-Way show that properties adjacent to a limited-access facility nearly always increase in value. Allowing for normal increases, the effect of the Merritt Parkway on lands within one mile at the facility was to double their value. When supplementary service roads are provided, property values often increase phenomenally. The state builds service roads only when study shows that costs of severance damage would exceed costs of the service road.

Mr. L. T. Scott-Smith reported that an expressway system has been planned and partially built to serve the Waterbury Metropolitan area serving some 155,000 persons. The city is a typical New England town with narrow, congested streets in the Central Business District. This central area is served by a series of radials connecting to the "bedroom" satellites a few miles removed.

The first important section of the new highway system to be completed was put in service about a year ago. This section skirts the central business district and serves the city much better than would a by-pass skirting through the suburbs. Traffic volumes on principal downtown streets have been reduced as much as thirty per cent without adversely affecting business in the area.

The meeting was then opened for general discussion.

Reported by F. Houston Wynn
Secretary-Treasurer

Western Section

Thursday, November 2, ITE Bay Area men gathered at Berkeley and held a dinner meeting with some 121 total attendance and ITE members were well represented. The occasion was an open session on route selection and traffic assignment. NICK CARTER from Sacramento, our newly-elected Director, introduced EARL CAMPBELL, speaker of the evening. Discussion was carried on by K. A. MacLACHLAN, Planning Engineer for California Division of Highways. DICK GALLAGHER, Director of Public Works for Berkeley, gave a brief re-hash on the New York meeting, while DON BERRY of ITE discussed plans for the 1951 meeting in Los Angeles. The non-technical session immediately preceding the dinner was courtesy of Ferro Enameling Company and Western Traction Company.

Reported by Ross Shoaf
Bay Area Chairman

PLEASE MENTION TRAFFIC ENGINEERING When Writing To Advertisers

Personality Sketch

Safety was an occupational accident with NORMAN DAMON. What began nearly a quarter century ago as a minor chore connected with the automobile trade association work in which he was then engaged, grew into a full-fledged career that has made him one of the best-known safety leaders in the United States.

Harris and Ewing Photo
Washington, D. C.

Norm started out as a fugitive from the corn rows of his native farm at Gerry, New York. No sooner had he latched onto his high school diploma than he headed for the big city. His first job, like virtually every one he has held since, was in the field of transportation. He became a stenographer with the Adams Express Company in Manhattan.

In 1917, when Washington, D. C., was becoming a beehive of war activities and the "promised land" of fascinating jobs, Norm's dynamic nature drew him to the nation's capital, where he obtained a position in the stenographic pool of the Council of National Defense. The young lady in charge, named Madeleine Hoag, appealed to him so much that he decided to make her his boss for life. Norm married her a few years later, thereby pulling a neat switch on the "she married her boss" theme of the movies.

Roy D. Chapin, president of the Hudson Motor Car Company, had just been called to Washington to organize and head up a Highway Transport Committee within the framework of the Council. One day Norm was assigned to take dictation from the automobile magnate. In true Alger hero style, he caught Chapin's fancy, and forthwith became his personal secretary.

The function of the Highway Transport Committee was to expedite the movement of trucks, carrying war materials and supplies, from Detroit to the Eastern seaboard for shipment overseas. Frequently whole convoys of trucks bogged down in the mud sloughs that went by the name of roads in those days. Norm's experience with the committee left two indelible impressions—one, the potential importance of truck transportation to the nation's economy and security and second, the vital need of better roads.

Young Damon's career next took a military turn. He joined the Navy, and he affirms he lost no ground, because during his service he advanced all the way from apprentice seaman to seaman second class.

When he put his bell-bottomed trousers away in the spring of 1919, he went to Detroit as secretary to Mr. Chapin at the Hudson Company. Mr. Chapin decided his bright young man could stand a little college polish, and prevailed upon him to enroll at the University of Michigan. Among the classmates with whom Norm became good friends was another enterprising young farm boy—one Thomas E. Dewey.

Norm first learned to drive a car when, after graduation in three years with an A.B. degree he returned to work with Mr. Chapin. On one occasion, a company executive wanted to be driven to a business appointment. Norm had a rudimentary knowledge of operating a Model T, but had never handled a gear-shift automobile. However, he confidently took the wheel and got his passenger safely to his destination. The only untoward incident was when Norm discovered he had driven all the way with the hand brake on.

In 1922, Norm became assistant to the Washington representative of the Automobile Manufacturers Association, who happened to be Pyke Johnson, now president of the Automotive Safety Foundation. It was in this capacity that Norm "got his feet wet" in the organized highway safety movement. U. S. Secretary of Commerce Herbert Hoover in 1924 called the first National Conference on Street and Highway Safety, and Norm was asked to serve as secretary on one of the committees. He has been a safety crusader ever since.

In the early thirties he became secretary to the AMA Safety Committee, of which Paul Hoffman was then chairman. Up to that time, the traffic safety interest of the automobile industry was limited to this nominal committee and Mr. Hoffman's personal efforts in behalf of the Harvard Bureau of Street Traffic Research, forerunner of the Yale Bureau of Highway Traffic.

Then in 1935, when the traffic toll reached a new high of 36,000 deaths, J. C. Furnas tossed a bomb into public complacency with his blood-curdling article, "And Sudden Death." Millions of reprints of the piece were distributed, newspapers across the land picked up the theme. The Detroit Daily News ran a front page editorial headlined "Stop the Automobile Slaughter!"

The repercussions stimulated the industry into action. The AMA Board of Directors called on the Safety Committee for recommendations, and the principal one called for a full-time staff to administer a positive safety program. The step was approved by the Board, and Mr. Hoffman urged Alfred Reeves, AMA general manager, to put the new safety department in charge of Norman Damon.

Norm got the job, and on June 2, 1937, the program really got under way with the organization of the Automotive Safety Foundation. Its main objective, then as now, was to provide the sinews of war to accredited organizations with the know-how to fight traffic accidents. As the Foundation's first director, Norm became in effect the industry's "trouble-shooter" in the traffic safety field.

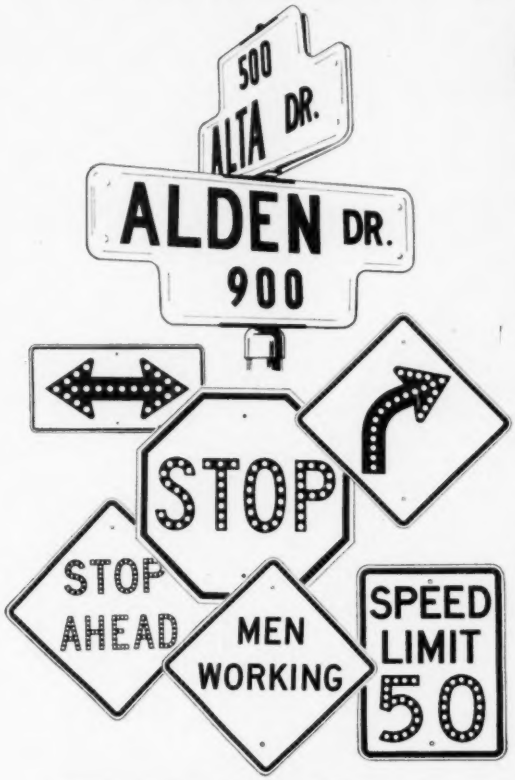
Principal achievement during those years was the cooperative work of the Foundation and a dozen other national organizations in the development of the Standard Highway Safety Program for States. This later became the backbone of the Action Program of the President's Highway Safety Conference.

Since 1942, when the Foundation was reorganized to include highway development in addition to safety activities, Norm has been its vice-president and director of the grant program.

There is general agreement among his colleagues and friends that the remarkable progress made in recent years in the professional training of traffic personnel stands largely as a monument to his vision and untiring efforts. He was a founder and spark-plug of the National Committee for Traffic Training and the National Committee for Fleet Supervisor Training. His contribution is implicit in the increasing number of universities and colleges across the land that are now offering specialized train-

TO EFFECTIVE

TRAFFIC CONTROL.....



Grote SIGNS

Here are high-visibility signs for practically every traffic control need; Street name plates for instant recognition of name and number; parking signs that politely enforce traffic control; road signs to improve highway safety. Built for years of dependable, long-wear service, all GROTE Signs are made of heavy, zinc coated, Bonderized steel, finished with special baked enamel processes that make them permanently bright and attractive — that resists the action of weather, salt spray, smoke or airborne chemicals. All are made to the Grote high standards of manufacture and conform to the accepted official standards and recommended uniform sign systems. For economy purchase and installation, always specify Grote Signs.

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Modern Signs for Modern Communities.

THE Grote MFG. CO., INC.
Grote Square
BELLEVUE, KENTUCKY
Opposite Cincinnati

ing for police, safety teachers, traffic engineers and fleet executives.

He has also been one of the prime movers in the stimulation of the high school driver education program, which is rapidly spreading throughout the nation.

Currently he is chairman of the Committee on Economic Costs of Motor Vehicle Accidents, Highway Research Board; consultant to the President's Highway Safety Conference; chairman of the National Committee for Traffic Training; a member of the Traffic and Transportation Conference and the National Safety Council. He is also a member of the American Society of Safety Engineers, an associate member of the Society of Automotive Engineers, an affiliate of the Institute of Traffic Engineers, an honorary member of the International Association of Chiefs of Police and an honorary life member of the National Sheriff's Association.

His hobbies include gin rummy, golf, fishing, and joining in whatever the other fellow likes to do, providing he can get a small wager on the side and a suitable handicap. At golf, he rarely breaks 100 going down, which explains why he has to win his bets on the first tee. To make sure that he does win, he customarily disconcerts his opponents by swinging from the port side.

He is probably the only fisherman who was ever hooked by a fish. Not long ago on a vacation at Balsam Lake, Wisconsin, he hooked a small but legal-sized (he claims) bass, which forthwith retaliated by leaping up and snagging the hook into his thumb.

He has three sons, all bigger than himself, so that now he has to wait for a grandson to have somebody he can lick.

One of the most cherished memories of his many years of labor for the conservation of life and limb is a photograph given to him by Paul Hoffman, with this simple inscription: "To Norman Damon, pioneer and pacemaker in highway safety."

Harry S. Kamy is now Lt. Col. Harry S. Kamy and for those interested, his new address is:

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Fleming to Head All Commerce Department Transportation Activities

In order to centralize Commerce Department transportation activities Secretary Sawyer has isssued an order delegating additional responsibilities to the Under Secretary for Transportation, Major General Philip B. Fleming, and establishing a Transportation Council within the Department, with the Under Secretary as Chairman. The order also provides for designation by the Under Secretary of a Deputy Under Secretary for Transportation, who will serve as Chief of a newly-created Office of Transportation.

Among his additional duties the Under Secretary for Transportation will be responsible for:

Compiling and analyzing estimates of traffic requirements to be imposed upon existing transportation facilities by the needs of industrial mobilization; determining the adequacy of such facilities to handle the increased load; developing proposals designed to secure the best possible use of existing transportation facilities, and stimulate the provision of needed additional facilities.

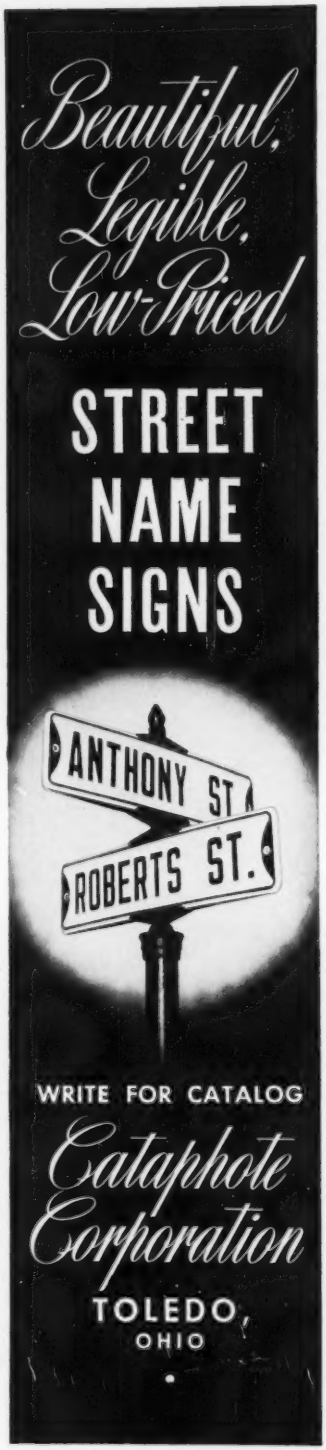
The newly-established Transportation Council, with the Under Secretary for Transportation as chairman, will consist of: The Chairman of the Civil Aeronautics Board, the Maritime Administrator, the Commissioner of Public Roads, the Civil Aeronautics Administrator, and the Chairman of the Advisory Board of the Inland Waterways Corporation.

The Transportation Council will advise the Secretary with respect to Departmental policies in the general field of transportation. Specifically it will:

(1) Develop coordinated policies and programs of the Department's transportation agencies in the interests of successful mobilization of the nation's transportation resources.

(2) Develop policies and programs designed to enable the Secretary to fulfill his responsibilities with respect to the availability and maintenance of transportation resources adequate to meet the needs of commerce and national security.

National Defense



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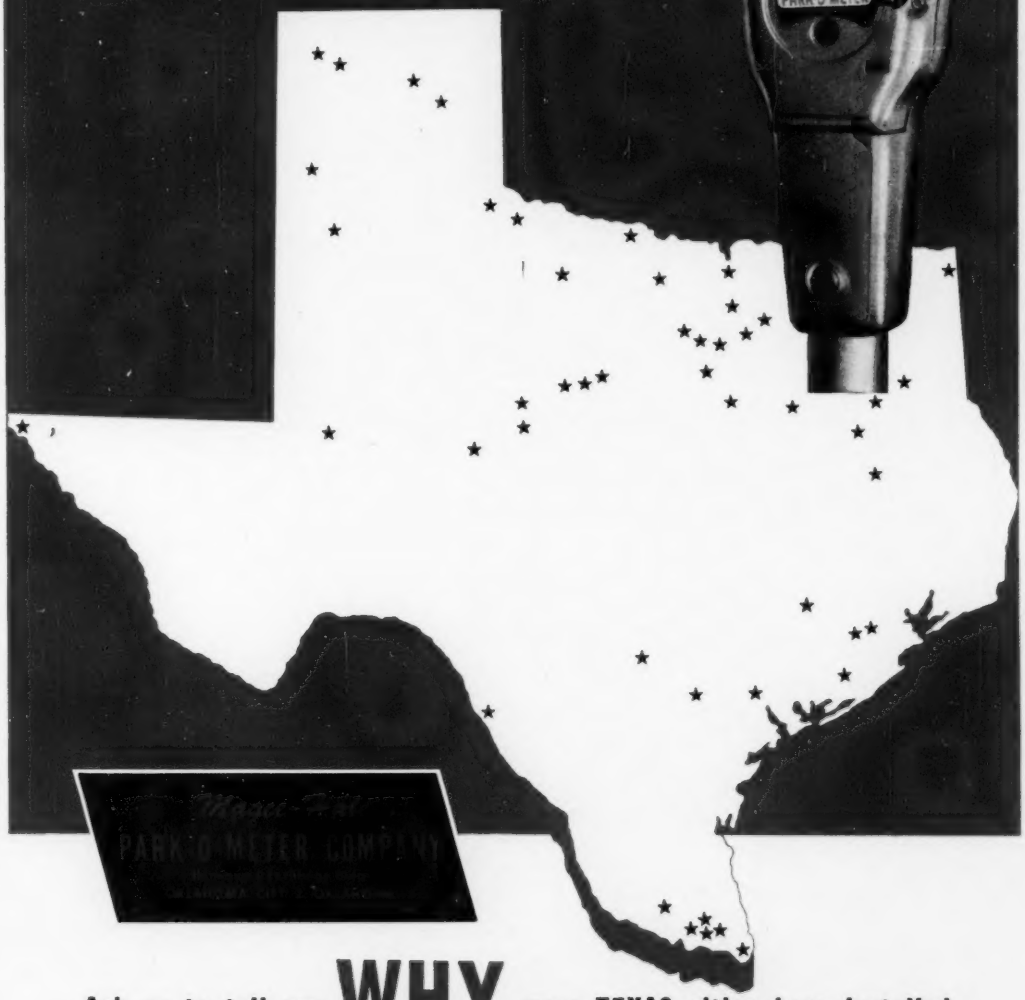

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American Optometric Association, Department of Public Information.

Vision Standards for Drivers. The Association, May, 1950. 4pp.

Folder giving definitions and brief explanations of the terms used in examination of the vision of drivers.

Arizona Highway Department, Division of Economics and Statistics in cooperation with U. S. Bureau of Public Roads.

Downhill Speeds of Trucks on Mountain Grades. The Department, May, 1950. 41pp., charts, graphs, tables.

A supplement to the Department's recent study of uphill speeds of trucks on mountain grades. "The recorded observations reflect what actually happened on the highways under the grade conditions shown in the accompanying maps."

Arizona Highway Department in cooperation with the City of Phoenix and Maricopa County and the U. S. Bureau of Public Roads.

A Street Arterial Plan for Phoenix, Arizona. The Highway Department, 1950. 72pp., maps, charts, tables.

Population trend, motor vehicle registration, land use, origin and destination traffic surveys, traffic patterns, analysis of the data and a street and highway plan.

Arizona Highway Department, Division of Economics and Statistics in cooperation with the U. S. Bureau of Public Roads.

Final Report on Statewide Origin-Destination Traffic Survey, 1948-1949. Interstate Traffic Study, May 24, 1950. Maps, tables, short text. The Department, 1950.

A study of interstate traffic volumes with seasonal variations, over an entire year.

Berkowitz, S. M., Felton, W. W., Grubmeyer, R. S., and Reid R. R.

The Applicability of Simulation to the Investigation of Air Traffic Control Problems. The Franklin Institute Laboratories for Research and Development, March 17, 1950. 115pp., mimeo., graphs, tables, etc.

"This report presents methods and devices for simulating the flight of aircraft in the general area and in the final approach areas of an airport under various conditions of wind and under various traffic control systems."

Charlotte, North Carolina, Traffic Engineering Department.

Duke Power Transit Improvement Plan. The Department, June, 1950. Report and Appendix (2 parts).

"A transit study and report covering on and off count, cordon count, transfer habits, population distribution, and origin and destination studies" designed to provide data for use in improving routes, schedules, stops and transfer points.

Chamber of Commerce of the United States, Transportation and Communication Department.

Solutions to the Problem of Merchandise Pickup and Delivery in Business Districts. Washington, D. C., The Chamber, 1950. 24pp., illus.

Questions and answers on the traffic and economic problems caused by pick-up and delivery practices and what business men and city officials can do to curtail the waste of time and money involved.

Connecticut State Highway Department in cooperation with U. S. Bureau of Public Roads.

Traffic Study, U. S. 1, Norwalk. The Department, May, 1950. 62pp., mimeo., maps, charts, tables.

A traffic study of Norwalk with particular emphasis on east-west traffic, designed to serve two purposes: "(1) present recommendations for a solution of Route U. S. 1 traffic conditions and (2) answer the many questions in the minds of local citizens regarding the manner in which a relocation of Route U. S. 1 will affect the community."

Glanville, W. H.

"Operational Research" and Road Research. Report of Meeting Addressed by Dr. W. H. Glanville, C.B.E., Director of Road Research, Road Research Laboratory, Department of Scientific and Industrial Research, 25th November, 1949, being the fifth of a series of lectures arranged by the Manchester Joint Research Council and held in Manchester.

A discussion of the similarities between the methods of investigation and planning used by the wartime "Operational Research" units and those which must be used for effective highway and traffic engineering with examples of experiments carried out by the Road Research Laboratory and some conclusions drawn from them.

Highway Research Board

Controlled Access Expressways in Urban Areas. The Board, 1950. Bulletin No. 25.

A committee of engineers and administrators who have had "intimate acquaintance with expressway planning and operations" have prepared this report on the many factors which should be considered and more carefully investigated than has been done heretofore before formulating plans for expressways.

Highway Research Board.

The Truck Weight Problem in Highway Transportation. The Board, July, 1950. Bulletin No. 26. 127pp., mimeo.

A survey of loading practices; size and weight laws of the states; policies and practices for overweight permits; enforcement of regulations; the use of portable scales; road design practices of various states and a selected bibliography including a test road program and suggested research projects.

New York State Department of Public Works and the U. S. Bureau of Public Roads.

Co-operative Highway Needs Study. The Department, 1950. 165pp., illus., maps, charts.

An inventory of the deficiencies and the needs of the New York State highway system; forecasts of future traffic volumes and studies of generating factors and recommendations for future road building.

Pennsylvania Department of Highways, Planning and Traffic Division in cooperation with the Bureau of Public Roads.

Erie Metropolitan Area Traffic Survey. The Department of Highways, 1950. Variously paged, maps, charts, tables.

The Port of New York Authority, Department of Airport Development, Airport Planning Bureau.

Air Traffic Forecast, 1950-1980, New York-New Jersey Port District. The Authority, June, 1950. Forecast and 3 appendices (5 volumes).

A study to determine probable future air traffic of the area. It involves study of intercity transportation in the nation as a whole and "presents estimates of total commercial air passenger, cargo, and mail traffic, domestic and international, that can be expected" for the region during the period stated.

U. S. Congress Joint Committee on the Economic Report.

Highways and the Nation's Economy. U. S. Government Printing Office, Washington, D. C., 1950. 20c. "The work was undertaken with a view to measuring the impact on the general economy of the Federal contribution to the construction of the Nation's highway system." It discusses present deficiencies and needs, estimated employment, cost of maintenance trends; expanding automobile production and use and probable highway needs to meet expanding highway use.

U. S. Bureau of Labor Statistics.

Employment Outlook for Engineers. BLS Bulletin No. 968. U. S. Government Printing Office, Washington 25, D. C. 50c. The bulletin discusses the number of engineers employed at various periods over the last fifty years; the proportion of trained engineers to total number of workers employed in several types of industry; the number of engineering graduates in recent years and

their prospects for employment. A brief summary of the report and an accompanying wall chart may be obtained free of charge from the Bureau of Labor Statistics Regional Office, 18 Oliver Street, Boston 10, Mass.

U. S. Secretary of Commerce.

Issues Involved in a Unified and Coordinated Federal Program for Transportation. Superintendent of Documents, U. S. Government Printing Office, December 1, 1949. 20c. Report in five parts: The Nature of the Federal Transportation Program; Federal Promotional Activities; Federal Regulatory Activities; Conflicts Between Federal Regulation and Promotion; Federal Transportation Policy and National Defense.

West Virginia State Road Commission, Planning Division in cooperation with the Bureau of Public Roads.

Traffic Survey Report of Bluefield, West Virginia, 1949. The Road Commission, 1950. 64pp., mimeo., maps, tables, graphs, etc.

Study of the origins and destinations of traffic into, through and within the city of Bluefield. "The survey was conducted by the so-called 'Canton' method, of the controlled post card questionnaire type."

Wiley, C. C.

School Crossing Signals. Department of Civil Engineering, University of Illinois, 1950. 12pp.

"The primary object of the study was to determine the characteristics demanded of a signal adequately to serve as a mechanical assistant to the School Boy Patrol and eliminate the need for a police officer at busy school crossings."

Winter Driving Test Results Made Public

The National Safety Council has released a report on winter driving tests conducted early last year on the frozen surface of Pine Lake, near Clintonville, Wisconsin, by the Council's Committee on Winter Driving Hazards.

The tests evaluated the performance of various "winterized" tire designs for stopping, traction and turning ability on glare ice. The project was undertaken with the cooperation and active participation of a number of tire manufacturers, engineers and public officials.

In general, the tests showed that progress had been made in producing safer tires for winter driving; natural rubber was better than cold synthetic for stopping and traction, but not quite as good for turning; that cars with automatic transmissions lend themselves to better control on ice than vehicles with conventional clutch and transmission; and that tire chains offered the better stop-and-go traction on snow and ice.

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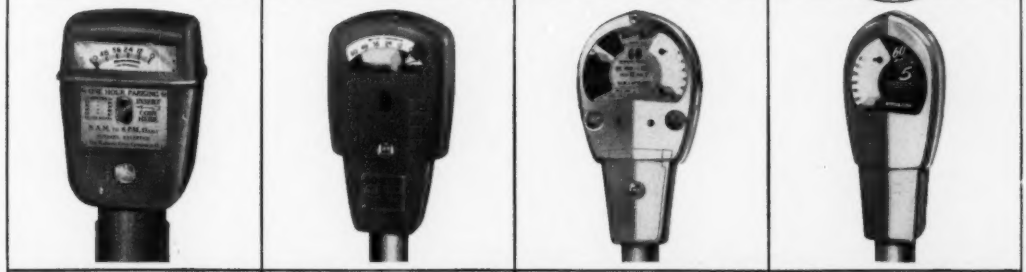

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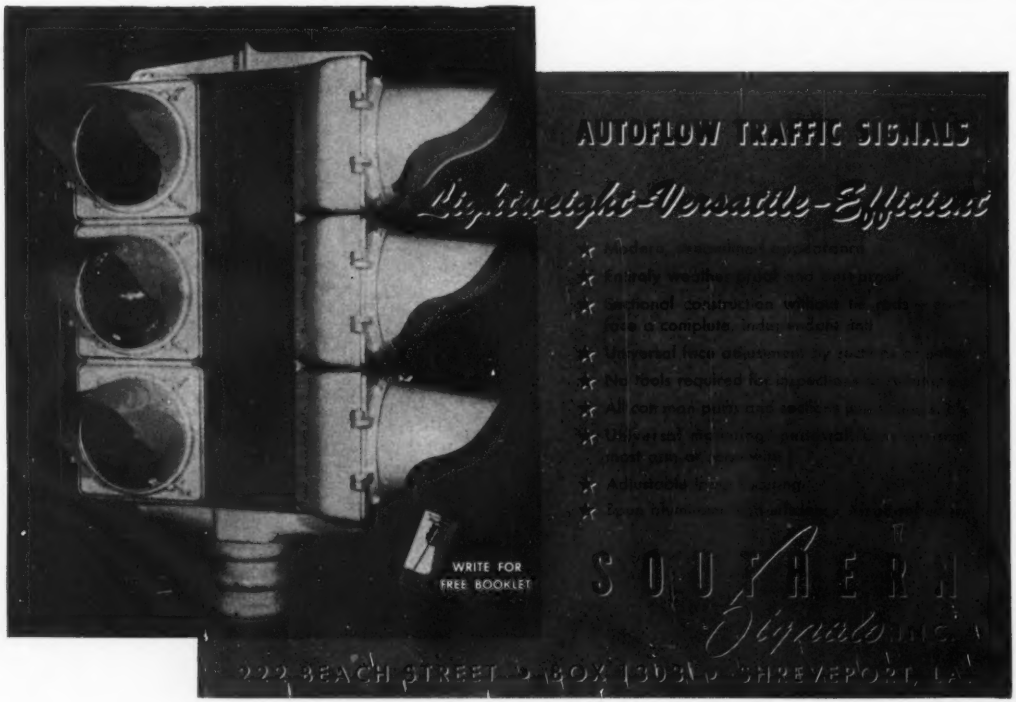
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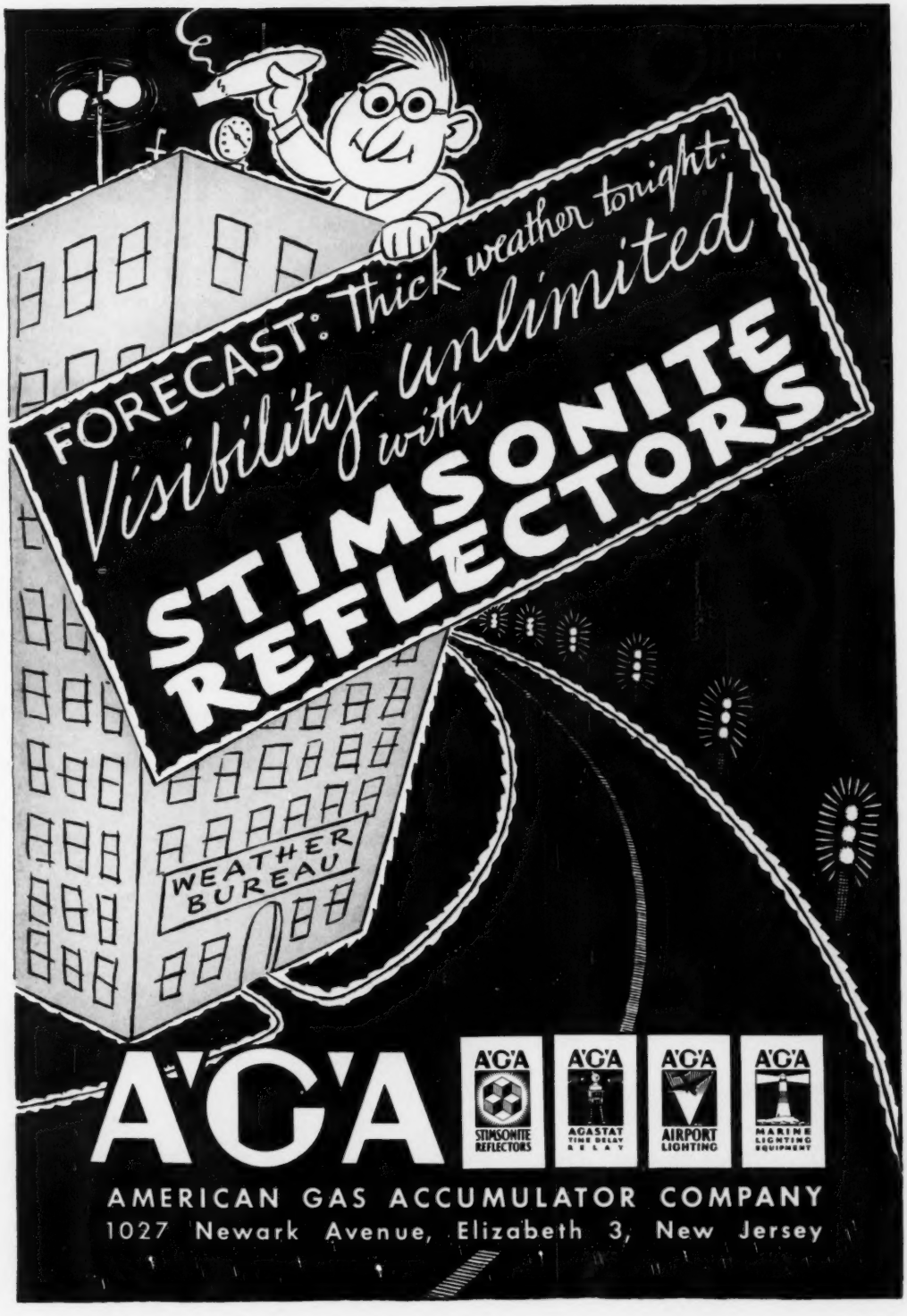
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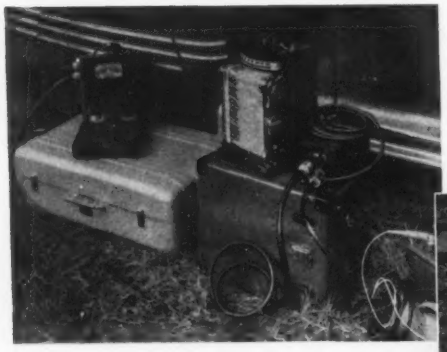

The instrument is quickly set up and connected, ready for operation after a minute or so for heating tubes. Under average conditions operating zone is about 150 ft. in advance of Antenna Unit. Continuous speed measurement is made of vehicles moving within the direct microwave radiation path.

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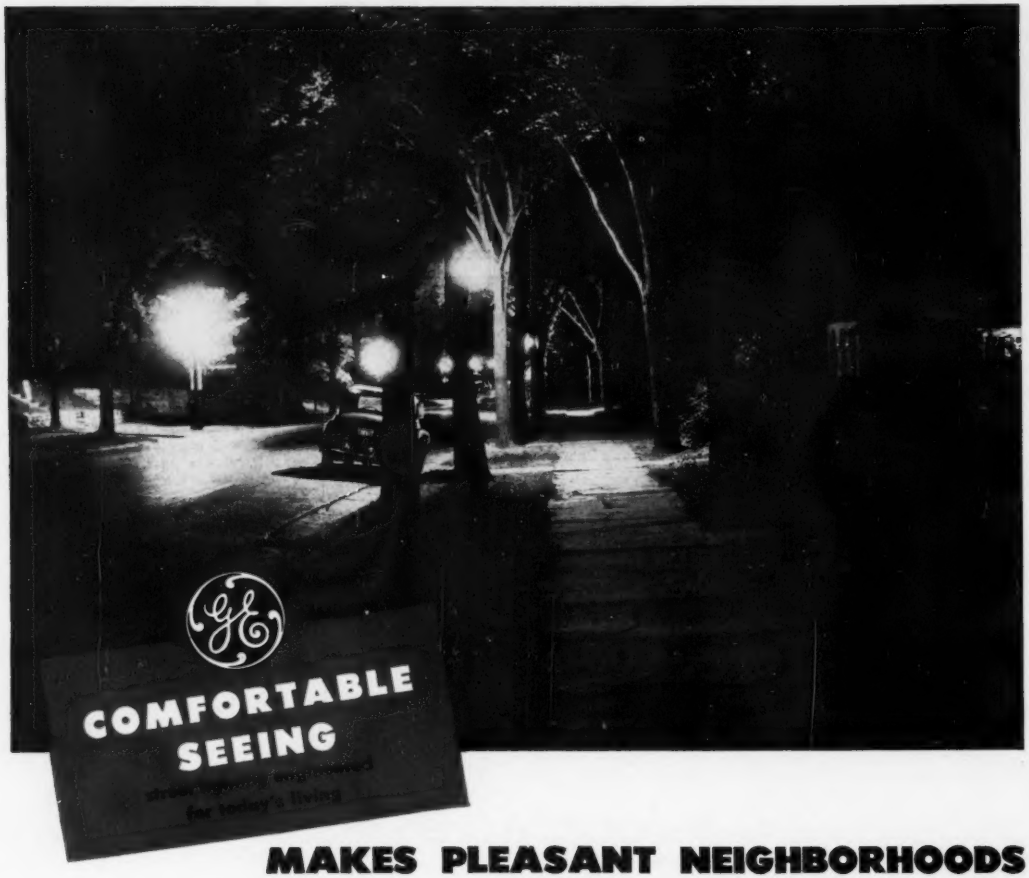

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